environmental and fire effects better than fiberglass.

Several petitioners stated that carbon fiber containers subject to the 2.25 safety factor are being used safely in real world situations. Thomas Built Buses, Inc., reported that there have been several thousand carbon fiber CNG containers built to ANSI/NGV2 requirements, i.e., subject to a safety factor of 2.25. Brunswick and EDO stated that they have built over 5,000 carbon fiber containers to ANSI/NGV2 requirements (2,600 Brunswick and 2,500 EDO.) According to Brunswick, many of these containers have been in service for at least 18 months, including carbon fiber containers that have been used in buses in Sweden for over five years.

Petitioners further stated that the higher carbon fiber safety factors in FMVSS No. 304 are not harmonized with the standards being set by others. For instance, Canada's CSA standard for CNG vehicle fuel containers uses a 2.25 safety factor. Similarly, the draft ISO standard for CNG containers incorporates the 2.25 safety factor. Moreover, several organizations and States have incorporated ANSI/NGV2 into their standards for CNG vehicles, including the National Fire Protection Association, New York Department of Transportation, California Highway Patrol, Texas Railroad Commission, and the State of Nebraska.

Many petitioners contended that the higher safety factors for carbon fiber containers required by FMVSS No. 304 will make these containers noncompetitive by unnecessarily increasing their cost and weight, thereby inhibiting the growth of the natural gas vehicle market. They noted that for a CNG container of a given size, the increased safety factor not only increases the cost and weight, because of the increased carbon fiber needed, but also reduces container interior volume. The American Gas Association (AGA), the National Gas Vehicle Coalition (NGVC), Brunswick, EDO, and Thomas each indicated that these results have a significant impact on the motor vehicle applications, particularly for buses and small passenger vehicles, which are particularly weight sensitive.

These petitioners provided specific data on the cost and weight impacts. AGA and NGVC stated that the higher safety factors in FMVSS No. 304 will increase the cost of carbon fiber containers by 25 to 40 percent[5] and eliminate their weight advantage. EDO stated that the higher safety factor for one of its carbon fiber containers would result in a 38 percent (or $395) selling price increase and 32 percent weight increase (approximately 25 pounds) for the same container interior volume. EDO added that for a bus using 12 such containers, this would result in a price increase of $4,740 for the containers (excluding other costs such as OEM markup and changes to the mounting brackets). Similarly, Brunswick stated that the agency's Final Regulatory Evaluation (FRE) significantly understated the cost impact of the higher safety factors, particularly for buses. That manufacturer estimated that the incremental cost impact of the higher safety factors would be $5,461 per bus, not $1,240 to $2,483 as estimated by the agency. Thomas Built stated that the high strength, light-weight carbon fiber container has made its bus applications more practical by increasing passenger capacity by six persons over what is possible with steel/fiberglass containers, since a smaller carbon fiber CNG container has approximately the same internal capacity as a larger steel/fiberglass container.

Based on the information submitted in the petitions for reconsideration and other available information, NHTSA has determined that a 2.25 safety factor is more appropriate than the factors originally established in September 1994 for carbon fiber CNG containers. After analyzing this information, the agency believes that the lower safety factor adopted in December 1994 is adequate to ensure that carbon fiber CNG containers will have sufficient strength to perform in a motor vehicle environment. The test data and information on real-world experience supplied by the petitioners appear to support the agency's determination that a 2.25 safety factor is appropriate. During that time, there have been no known failures. NHTSA further notes that the 2.25 safety factor harmonizes with the value specified in ANSI/NGV2 and in the CSA standard. The agency also agrees with the petitioners that the higher safety factor adopted in the final rule would have significantly increased the cost and weight associated with carbon fiber containers, even though the 2.25 safety factor now appears adequate to ensure their safety. In conclusion, NHTSA has determined that adopting the 2.25 safety factor is sufficient to ensure safety. Thus, the safety factor or stress ratio, for each fiber material in a fuel container will be as defined in FMVSS No. 304 for that fiber, with the stress ratio for carbon fiber being 2.25.

B. Other Amendments

In the petitions for reconsideration, ten petitioners—Ford, Pressed Steel Tank (PST), Norris, Structural Composites Industries (SCI), Compressed Gas Association (CGA), NGV Systems, the Flxible Corp, Powertech Labs, Brunswick, and Chrysler—requested a variety of amendments to FMVSS No. 304. Each requested modification, along with the agency's analysis of the desirability of the requested modification, is discussed below.

1. Definitions for Burst Pressure

SCI recommended that the reference to temperature in the definition of burst pressure be in terms of ambient temperature, rather than 70 °F, since the current reference implies to the petitioner that the burst test must be performed at 70 °F. Section S4 defines burst pressure as ''* * * the highest internal pressure reached in a CNG fuel container during a burst test at a temperature of 21 °C (70 °F).''

NHTSA has decided not to adopt SCI's request to modify the definition for burst pressure. Neither NHTSA nor NGV2 specifies the temperature at which the burst test needs to be conducted. The agency further notes that SCI provided no other rationale to justify this modification, and no other petitioner commented that the definition was inappropriate. Further, the definition for burst pressure in S4 is consistent with that of ANSI/NGV2, which represents a consensus of the natural gas vehicle industry. Therefore, adopting the requested modification might cause confusion for manufacturers.

2. Container and Material Requirements

a. *NASA computer program.* NGV Systems, SCI, Powertech, and PST petitioned the agency to correct the name and statement about the availability of the National Aeronautics and Space Administration (NASA) computer program referenced in S5.5.1 and Part 571.5(b)(9).

NHTSA has adopted the requested amendments to S5.5.1 and Part 571.5(b)(9), since the agency, in the final rule, used an incorrect title and erroneously stated that it was available from NASA. The computer program's correct title is ''Computer Program for the Analysis of Filament-Reinforced Metal-Wound Pressure Vessels.'' The program is available from the National Technical Information Service,

[5] Assuming that each CNG carbon fiber container built to the 2.25 safety factor costs approximately $1,000, costs would increase between $250 and $400.