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DHM

TANK CONFERENCE

177607

Truck Trailer Manufacturers Association
1020 Princess Street • Alexandria, Virginia 22314-2247 • (703) 549-3010 • Fax (703) 549-3014

RSPA-1999-12620-1

Richard P. Bowling
President

April 8, 1999

Kelly S. Coyner
Administrator
Research & Special Programs Administration
400 Seventh Street, S.W.
Washington, DC 20590

Subject: Petition to Revise 178.346-2, Tables I and II, Minimum Thickness of Heads, Bulkheads, Baffles, and Shells for DOT 406 Cargo Tanks

Dear Ms. Coyner:

We petition you to revise Tables I and II referred to in 49 CFR 178.346-2 as follows:

Table 1

Minimum Thickness of Heads (or Bulkheads and Baffles When Used As Tank Reinforcement) Using Mild Steel (MS), High Strength Low Alloy Steel (HSLA), Austenitic Stainless Steel (SS), or Aluminum (AL) - Expressed in Decimals of an Inch After Forming.

	Volume capacity in gallons per inch of length								
	14 or less			Over 14 to 23			Over 23		
Material	MS	HSLA SS	AL	MS	HSLA SS	AL	MS	HSLA SS	AL
Thickness	.094	.094	.144	.108	.108	.156	.121	.121	.168

Table II

Minimum Thickness of Shell Using Mild Steel (MS), High Strength Low Alloy Steel (HSLA), Austenitic Stainless Steel (SS), or Aluminum (AL\) - Expressed in Decimals Of An Inch After Forming (1).

RATED CAPACITY (GALLONS)	MS	SS/HSLA	AL
More than 0 to at least 4,500	.094	.094	.136
More than 4,500 to at least 8,000	.108	.094	.144
More than 8000 to at least 14,000	.121	.121	.156
More than 14,000	.135	.135	.168

(1) Maximum distance between bulkheads, baffles, or ring stiffeners shall not exceed 60 inches.

The minimum thicknesses found in the tables are arbitrary and result in a cargo tank shell and head thickness greater than those calculated per 178.345-2. If this petition is adopted, the recommended minimum manufactured thicknesses will be reduced to the inservice minimum thicknesses found in 180.407(I)(5).

Steel sheets are ordered by gauge thickness, and steel mills routinely provide thicknesses just under, or close to, the minimums of the present tables. In order to allow for approximately 0.002 inch forming tolerance and to comply with the present minimum thicknesses, the next thicker gauge material must be ordered. For example, 11 gauge steel sheet typically arrives with a thickness range of 0.114 to 0.118 inches. The next thicker 10 gauge material would typically be 0.134 inches thick. This results in an unnecessarily thicker and heavier cargo tank shell, resulting in more trips and more exposure to accidents.

If this petition is adopted, the following decrease in empty weight of the cargo tank, increased gasoline cargo capacity, and decreased cost may be anticipated.

Nominal Capacity (gallons)	Material	Empty Weight Decrease (pounds)	Increased Gasoline Capacity (gallons)	Decreased Cost (dollars)
2400	mild steel	430	70	$200
4000	mild steel	610	100	$280
9000	aluminum	110	18	$220

Sincerely,

Donald W. Vierimaa

Donald W. Vierimaa
Vice President-Engineering

DWV/mm

cc: Tank Conference Engineering Committee