



U.S. Department
of Transportation

**Research and
Special Programs
Administration**

400 Seventh Street, S.W.
Washington, D.C. 20590

OCT 15 2001

Reference No.: 01-0122

Mr. Alan F. Campbell
Catalina Cylinders
2400 Aluminum Avenue
Hampton, Virginia 23661

Dear Mr. Campbell:

This is in response to your May 8, 2001 letter concerning the heat treatment requirements in 49 CFR 178.46 (f) and (j) for cylinders made to the DOT 3AL specification. Your questions are paraphrase and answered as follows:

Q1. What constitutes a heat treatment under §178.46(f)?

A1. Under § 178.46 (f), a heat treatment consists of two parts, a solution heat treatment conducted at a high temperature to dissolve the alloying constituents, followed by an aging treatment (artificial or natural) to allow the alloying constituents to precipitate. The aging treatment may involve more than one heating cycle (artificial aging) in order to achieve the desired material properties.

Q2. Are additional aging treatments considered reheat treatment under § 178.46(j)?

A2. No. The aging treatment alone is not considered reheat treatment. The reheat treatment described in § 178.46(j) begins only when the cylinder is subjected to a second solution heat treatment.

I hope this information is helpful.

Sincerely,

John A. Gale
Transportation Regulations Specialist
Office of Hazardous Materials Standards



010122

178.46(f)



Betts
§ 178.46 (f) (j)
~~§ 178.65 (i) (1)~~
Cylinders
01-0122

May 8, 2001

Research and Special Programs Administration
U. S. Department of Transportation
400 Seventh Street, SW
Washington, DC 20590-0001

ATT: Ms. Hattie Mitchell, DHM-12

RE: 49 CFR § 178.46 (f) & (j)

Dear Ms. Mitchell:

On April 12th 2001 Catalina Cylinders completed a DOT compliance inspection to DOT-3AL. We were cited for a probable violation for certifying cylinders as DOT-3AL specification cylinders when the cylinders were subjected to heat treatment not authorized by the Hazardous Materials Regulations. Two lots of cylinders were identified, each lot of which had been solution heat treated only twice, but which had been subjected to additional aging more than two times before finally passing their required mechanical property tests.

It has always been our interpretation of the specification 49 CFR § 178.46(f) Heat treatment which states "all cylinders must be subjected to a solution heat treatment and aging treatment appropriate for the aluminum alloy used" clearly separates the heat treatment and aging treatments. Therefore paragraph § 178.46(j) which states that reheat treatment (not aging treatments) is only authorized one time clearly does not restrict the additional aging treatment.

In order to support our understanding, I have attached a copy of AMS-H-6088B, page 6 concerning Re-Solution Heat Treatment which states that "age hardening heat treatments shall not be considered resolution heat treatments." This is the same wording also contained in MIL-H-6088.

We have consulted with others in our industry who manufacture and inspect to DOT 3AL who also agree with our interpretation that additional aging even if conducted more than twice is acceptable.

We request a clarification of the current wording of §178.46(j) to indicate that additional aging treatments are not considered reheat treatment similar to AMS-H-6088. Such an addition would make the specification clear in limiting the resolution heat treatment of cylinders but not the additional aging. This would also make the regulations consistent with what we believe to be the universal practice in the aluminum cylinder, aircraft and forging industries.

Sincerely,

Alan F. Campbell
Quality Assurance Manager

cc: J. Cunningham
T. Newell
J. Harris Cochrane Labs

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