



U.S. Department  
of Transportation

**Research and  
Special Programs  
Administration**

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

MAY 16 2000

Ms. Helen Hatch  
Product Regulations Specialist, Lithium Division  
FMC Corporation  
Box 795  
Bessemer City, NC 28016

Ref. No. 00-0105

Dear Ms. Hatch:

This is in response to your letter dated April 4, 2000, concerning the packaging requirements for lithium under the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) and the International Civil Aviation Organization's Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Technical Instructions). Your questions are paraphrased and answered as follows:

**Question 1:** Is lithium metal in sealed pouches, further packed in steel cans, and then packed in a 1A2 steel drum, which has been certified as a single packaging for lithium metal, a single or combination packaging?

It is a single packaging. An authorized single packaging for a hazardous material may contain inner receptacles that are compatible with the lading as long as the inner receptacles do not adversely affect the level of performance of the packaging. The packaging would remain marked as a single packaging.

**Question 2:** Is the above packaging configuration considered a single or combination packaging under the ICAO Technical Instructions?

It is a single packaging. Section 7.1.2.1 of the ICAO Technical Instructions defines a combination packaging as a combination of packages for transport purposes, consisting of one or more inner packages secured in an outer packaging in accordance with the relevant provisions of Part 3. Further, this section defines a single packaging as a packaging that does not require any inner packaging to perform its containment function during transport. The relevant provisions of Part 3 for combination packagings do not apply to your packaging because your package meets the definition of a single packaging.



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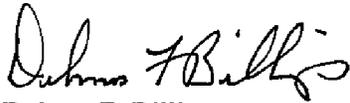
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**Question 3:** What weight limits apply to the above mentioned packaging?

The 15 kg limit applies to the packaging.

I hope this information is helpful. If you have further questions, please do not hesitate to contact this Office.

Sincerely,

A handwritten signature in black ink, appearing to read "Delmer F. Billings". The signature is written in a cursive style with a large initial "D".

Delmer F. Billings  
Chief, Standards Development  
Office of Hazardous Materials Standards

**FMC Corporation**

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Nelson  
\$ 171.11  
00-0105



Tuesday, April 04, 2000

Mr. Edward Mazzullo, Director  
Office of Hazardous Materials Standards  
Research and Special Programs Administration  
Department of Transportation (DHM-10)  
400 7<sup>th</sup> Street SW  
Washington, DC 20590-0001

Dear Mr. Mazzullo

On April 4, 2000, a member of your staff, Susan Gorsky, spoke with the Traffic and Regulatory staff at our company and explained DOT's interpretation of the regulations applicable to the transport of lithium by air. According to our conversation with Ms. Gorsky, the package in question is considered a single package and only the single package weight restrictions apply. I am now writing to get confirmation of this interpretation.

This question involves transport of lithium by air under the DOT HMR (49 CFR parts 171-180) and the International Civil Aviation Organization's Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Technical Instructions). Lithium has the following classification:

Proper Shipping Name: Lithium  
Classification: 4.3, Dangerous when wet  
Labels: Dangerous when wet  
UN Number: UN1415  
Packing Group: I

ICAO/IATA packaging instruction 412 authorizes both single and combination packaging for this material.

We use a steel drum for lithium metal shipments which is certified as a single package (UN marking: UN 1A2/X254/S/YY...). The drum is not tested or certified for any type of combination package.

Lithium is packed in sealed pouches, then packed in the authorized steel drum described above for shipment. For quality purposes and ease of handling, pouched lithium may also be packed in cans first, then the cans are packed in the 1A2 steel drum. Neither the pouches nor the cans adversely affect the level of performance of the metal drum. The pouches and cans are compatible with the lading, lithium.

The table in packaging instruction 412 indicates that the can is considered the inner packaging of a combination package and subject to the weight limits of a combination package (1 kg for inner packaging and 15 kg for the entire package). This appears inconsistent, because one could omit the can and pack lithium directly in the 1A2 steel drum limited only to 15 kg per drum.

Ref: (99-0151 Gorsky)

To summarize our questions, we pack lithium metal for air shipments two ways:

Package A: Lithium metal in sealed pouches, packed directly into a steel drum which has been certified as a single pack (UN 1A2/X254/S/YY...). Currently shipped as a single package, wt limit of 15 kg lithium.

Package B: Lithium metal in sealed pouches, then packed in steel cans, then packed in a steel drum which has been certified as a single pack (UN 1A2/X254/S/YY...).

- 1.) Is Package B considered a single package or combination package under ICAO/IATA?
- 2.) Is the can in Package B considered an inner packaging under ICAO/IATA?
- 3.) What weight limits apply to Package B?
  - a. Only the 15 kg limit for the entire package.
  - b. Both the 15 kg limit for the entire package and the 1 kg limit per can inside the steel drum.

We would very much appreciate confirmation of the above, in writing, at the earliest possible date. Thank you for your help clarifying this issue. If you have any questions or need further information, please do not hesitate to call me at 704-868-5309.

Sincerely yours,



Helen Hatch, Product Regulations Specialist  
FMC Lithium Division