U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety
Administration**

1200 New Jersey Avenue, SE
Washington, D.C. 20590

MAY 09 2016

Dr. Jeffrey Chinn
Chief Technical Officer
Integrated Surface Technologies
1455 Adams Dr., Suite 1125
Menlo Park, CA 94025

Reference No. 15-0211

Dear Dr. Chinn:

This responds to your October 27, 2015 email in which you request clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180). Specifically you ask if a DOT-SP 7737-1800 aluminum cylinder may be used as an inner packaging with a 4GV outer packaging for "UN2986, Chlorosilanes, Corrosive, Flammable, n.o.s." You state that the chlorosilanes can be corrosive to steel, and aluminum has better chemical compatibility for your application.

49 CFR 173.206 authorizes the use of combination packagings with steel or glass inner receptacles for materials described as "UN2986, Chlorosilanes, Corrosive, Flammable, n.o.s." Section 173.206(c) authorizes certain single packagings for these materials except for transportation by passenger aircraft. For PG I liquids, specification or UN standard cylinders, except Specification 3HT and those prescribed for acetylene, are authorized. For PG II liquids, specification cylinders, except Specification 8 and 3HT cylinders, are authorized.

Even though the HMR specifies certain packagings, it is the responsibility of the person offering the hazardous material for transportation to ensure that such packagings are compatible with their lading. This particularly applies to corrosivity, permeability, softening, premature aging and embrittlement. Further, packaging materials and contents must be such that there will be no significant chemical or galvanic reaction between the materials and the contents of the package. See § 173.24(e).

DOT-SP 7737-1800 aluminum alloy cylinders are authorized for the transportation of any Division 2.1, 2.2, and 2.3, and Class 3 material for which DOT specification 3AL cylinders is prescribed or authorized in 49 CFR Part 173. See section 6 of the special permit. As such, UN2986, Chlorosilanes, Corrosive, Flammable, n.o.s., may not be offered for transportation or transported in a DOT-SP 7737-1800 aluminum cylinder as an inner packaging of a combination packaging or as a single packaging.

You may apply to PHMSA for permission to use the non-DOT specification packaging described in your request under the terms of a special permit. To apply, you must submit an application to the Associate Administrator for Hazardous Materials Safety in conformance with the requirements prescribed in 49 CFR Part 107, Subpart B. In your application, you must provide justification that the packaging design you are considering achieves a level of safety that is equal to or greater than that required under the HMR. You may obtain information on the special permit application process from our website at http://www.phmsa.dot.gov/hazmat/regs/sp-a, or by calling PHMSA's Approvals and Permits Division at (202) 366-4511.

I hope this satisfies your inquiry. Please feel free to contact us if you need further assistance.

Sincerely,

Duane A. Pfund

Duane A. Pfund
International Standards Coordinator
Standards and Rulemaking Division

Antonielli
§172.101
HMT Table
15-0211

Dodd, Alice (PHMSA)

From: Geller, Shelby CTR (PHMSA)
Sent: Tuesday, October 27, 2015 4:44 PM
To: Hazmat Interps
Subject: FW: Request for Letter of Interpretation
Attachments: PHMSA Interpretation Request.pdf

Dear Shante and Alice,

Forwarded is a request for a formal letter of interpretation.

Thanks,
Shelby

From: Jeff [mailto:jeff@insurftech.com]
Sent: Tuesday, October 27, 2015 1:55 PM
To: INFOCNTR (PHMSA)
Subject: Request for Letter of Interpretation

Dear Sirs:

I am submitting this request for additional guidance of 49 CRF 172.101 with a formal interpretation. Please see my attached document.

If there are any questions or additional information required, please do not hesitate to contact me.

Sincerely,
Jeff Chinn

Jeff Chinn, Ph.D., Chief Technical Officer
Integrated Surface Technologies Inc.
1455 Adams Dr., Suite 1125
Menlo Park, CA 94025 USA
O: (650) 324-1824
M: (408) 718-6254
e: jeff@insurftech.com
w: www.insurftech.com

IST

Integrated Surface Technologies

October 27, 2015

To: Pipeline and Hazardous Materials Safety Administration
US Department of Transportation (DOT)

Ref: Formal Interpretation Request

Dear Sirs:

Please provide additional guidance on a question of 49 CFR 172.101 with a formal interpretation.

We want to ship chlorosilane chemicals under UN2986

Chlorosilanes, corrosive, flammable, n.o.s.	8	UN2986	II	8, 3	T14, TP2, TP7, TP13, TP27	None	206	243	Forbidden	30 L	C	40

The packaging requirements of subsection 173.206

- Generically states inner package Glass or Steel.
- Similarly if we ship under IATA packing instruction 876 states Glass or Steel.

Our concern is the chlorosilanes can be corrosive to steel resulting in corrosion. Our customers claim that ppm level of contamination occurs. (Glass is not desirable for our application.) We believe that aluminum has better chemical compatibility for our application.

The request is for a formal interpretation if an Aluminum bottle with DOT SP 7737-1800 cylinder as the inner package is acceptable in a 4GV outer box for shipping.

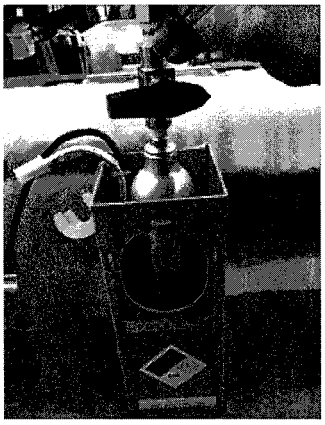
I have outline our complete packaging as part of your interpretation should there be additional questions.

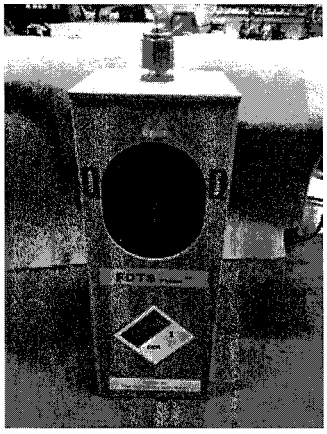
1. Use of DOT-SP 7737-1800 aluminum cylinder (capacity: 150cc)

1455 ADAMS DRIVE, SUITE 1125, MENLO PARK, CA 94025
• PHONE: (650) 324-1824 • FAX: (650) 573-1324 • EMAIL: INFO@INSURFTECH.COM

2. Chlorosilane is filed into bottle (Typically 25 to 50cc). Sealed with a steel valve.

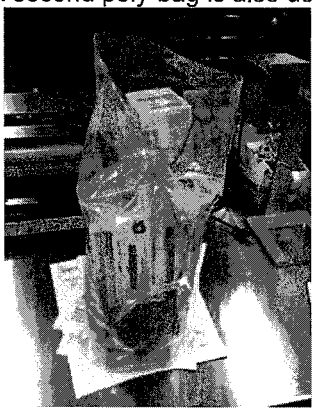
3. Sealed aluminum bottle is placed into a steel shell.





4. Steel shipping unit is sealed in Poly bag.

5. A second poly-bag is also used to seal the first bag for cleanroom requirements.




6. The outer package is 4GV box with vermiculite absorbent.



I would appreciate your response on this matter. If you have any questions about this request or require additional information, please do not hesitate to contact me.

Sincerely,

Jeffrey D Chinn

Jeff Chinn, Ph.D, Chief Technical Officer
Integrated Surface Technologies
1455 Adams Dr. / Suite 1125
Menlo Park, CA 94025
T: 408-718-6254
E: jeff@insurftech.com