U.S. Department
of Transportation
**Research and
Special Programs
Administration**

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

AUG 17 2001

Mr. Richard M. Thomas
Packaging Performance Specialist
Smurfit-Stone Container Corporation
910 Pasquinelli Drive
Westmont, Illinois 60559

Ref. No. 00-0342

Dear Mr. Thomas:

This responds to your December 6, 2000 letter requesting clarification of specification packaging requirements under the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180). Specifically, you ask a number of questions on packaging manufacturing and testing requirements. Your questions are paraphrased and answered as follows:

Q1. How detailed do you require fiberboard packaging specifications to be in the test report?

A1. The description of the packaging design type in the packaging test report required by § 178.601(l) must be sufficiently detailed to assure that the packaging represented as meeting UN standards can be identified by the test report.

Q2. Must a complete wet board analysis be conducted for all fiberboard components as part of the design qualification or periodic retesting? In other words, must the fiberboard be taken apart to determine the weight of each layer of fiberboard and corrugate?

A2. No, a complete wet board analysis is not required under the HMR. However, a wet board analysis could be used in the future to determine the exact type of fiberboard used in a particular packaging.

Q3. If a package testing laboratory submits a test report to its customer listing two completely different board combinations for the intended fiberboard components without indicating which board combination should actually be used in producing the certified package, which board combination should the manufacturer of the packaging use to produce the component?

A3. If the packaging was tested with both combinations, then either combination could be used for manufacture of the packaging.

Q4. How can a shipper of hazardous materials ensure that they are using a packaging correctly if the package testing laboratory does not provide enough detail in the test report required by § 178.601(l)?

A4. A manufacturer must produce and a shipper must use a packaging identical to the one tested. If the test report inadequately described the packaging, there is potential for non-compliance on the part of the manufacturer or shipper. If you become aware of an instance of non-compliance with the HMR, you should notify the Office of Hazardous Materials Enforcement (OHME) in writing at DHM-40, 400 7th Street SW, Washington, DC, 20590 or by telephone at (202) 366-4700.

Q5. If party "A" self-certifies a specification packaging, which is then manufactured by party "B," who is responsible for the certification? Would party "B" be held responsible for packaging violations providing the packaging is certified by party "A"?

A5. Generally, if party "A" certifies a packaging, they are responsible for assuring the packaging meets required specifications. Party "B" is responsible for following the specifications for the packaging provided by the certifying party or party "A." However, while the person certifying a packaging is generally responsible, others may have some responsibility based on the functions they perform and any contractual responsibilities they may have.

Q6. If there are multiple test reports reflecting different UN specifications for an outer packaging with different size inner receptacles, can the heaviest gross weight be used for the specification marking and then any of the different inner receptacles be used with the outer packaging?

A6. The heaviest gross weight specification marking may be used in the case where the largest inner receptacles comprise the packaging with the heaviest gross mass. In this case, one specification marking may identify the packaging. The packaging may then be used as provided by § 178.601(g)(1) with smaller receptacles or fewer inner receptacles. For combination packagings an inner receptacle may not be larger than the inner receptacles that were tested with the same outer packaging and you may not place more inner receptacles in an outer packaging than what were tested with the same outer packaging..

Q7. If a combination packaging was previously design qualification tested with several inner packagings all the same size and weight making up the gross weight of the packaging, can the outer packaging upon retest contain an increased number of inner packagings?

A7. No. (See § 178.601(c)(4).)

Q8. If a combination packaging was previously design qualification tested with several inner packagings all the same size and weight making up the gross weight of the package, can the outer packaging upon retest contain a different size inner packaging (diameter and/or height)?

A8. Yes, if inner packagings conform to Variation 1 in § 178.601(g)(1). The inner packagings must be: (1) equivalent in size or smaller than the tested inner packagings; (2) similar in design to the tested inner packagings; (3) constructed of material that offers the same or greater resistance to stacking forces as the tested inner packaging; (4) constructed with the same or smaller-sized openings and with closures that are similar in design to the tested inner packagings. In addition, sufficient cushioning must be provided to fill void spaces and prevent significant movement of the inner packagings, and the inner packagings must be oriented in the same manner as the tested packagings. Further, the gross mass of the entire package may not exceed that of the originally tested package. (See § 178.601(g)(1).)

Q9. If a package was previously design qualification tested with several inner packagings all the same size and weight making up the gross weight of the package, can the outer packaging upon retest contain fewer inner packagings, but a heavier net weight of inner packagings?

A9. Yes, provided the gross mass of the packaging does not exceed the originally tested package (see A10).

Q10. What is the responsibility of a testing lab or a manufacturer of a packaging if a customer does not properly class one of their materials and ships a hazmat as a non-hazmat?

A10. Under the HMR, a shipper is responsible for properly classing a hazardous material that is to be offered for transportation. A packaging manufacturer or its testing laboratory cannot be held responsible if its packaging is used by a shipper to transport a hazardous material that has not been properly classed and identified. However, if a shipper relies on a testing laboratory to class the hazardous material, then the testing laboratory could be cited for a violation of the HMR if the material is classed incorrectly.

I hope this satisfies your inquiry. If we can be of further assistance, please contact us.

Sincerely,

Edward T. Mazzullo

Edward T. Mazzullo
Director, Office of Hazardous
Materials Standards

Nelson

Smurfit-Stone
Marketing and Technical Center

December 6, 2000

Mr. Delmer Billings
US-DOT
Research and Special Programs Administration
Office of Hazardous Materials Standards, DHM-10
400 7th St., SW
Washington, DC 20590

Dear Mr. Billings:
As a Self-Certified Testing Laboratory and as a manufacturer of packaging (i.e. supplier of fiberboard boxes) we have recently had several questions/concerns raised by our customers.

How can our customers ensure themselves that they are meeting their responsibilities when some of the 3rd-Party and/or Self-Certified testing facilities they use don't follow simple regulations. We are looking for hopefully the final interpretation explaining what is actually meant/required by law under following sections of the regulations.

Please find several requests for interpretations and/or clarification based upon the current set of hazardous materials regulations:

Request 1: Record Retention: Description of packaging design types (49CFR178.601(l)(6)
As a manufacturer of packaging we believe it is imperative to manufacture our customer's fiberboard (outer and/or inner) components according to the most current test report our customers provide us. However, it is becoming increasingly difficult to meet these tasks due to the following situations. Please provide us with an explainable interpretation so we can provide our customers to end their confusion and reduce both of our liability during the shipment of their hazardous materials:

a. Lack of proper detailed description of components
   i. **How detailed require does the outer and/or /inner fiberboard packaging specifications have to be in the final UN Report?** Several 3rd-Party Certified Independent Labs and Self-Certified Labs state that they are not required to list the exact fiberboard combinations (example: 42 – 26 – 42 for a 200 lb.) for the outer packaging and especially the inner packaging such as pads, partitions, inserts, etc. Some labs may only indicate a "generic 200 lb. Mullen, ECT 32, a tare weight, or nothing at all.
   ii. **Is a complete wet board analysis required to be conducted for all fiberboard components as part the design qualification or periodic retesting?** Some 3rd-Party Certified Labs and Self-Certified Labs state they don't have to/or are not required to conduct an actual board analysis on any of the (outer and/or inner) packaging being tested. Instead they list what is provided on whatever

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specifications a customer provides them, believing it is the responsibility of the manufacturer of packaging to determine the actual board combination to use in the test.

iii. **If so, at what part of the test should the board analysis be required to be conducted?** Please remember if someone pays for a completed test and the Lab conducting the test performs the board analysis at the end of the test (if they actually conducted on at all). And, the tested board does not actually match what the customer was expecting; the customer most likely will incur an added expense (potentially up to the cost of a full test) creating a financial advantage for the 3rd-Party Certified or Self-Certified Lab by conducting the board analysis at the end of the test

Recently, we had an in-depth conversation with a 3rd-Party Certified Lab which stated that they conducted their board analysis at the end of the test... certifying whatever they tested even though it might not have been with the expected board combination. Because, it would be a logistical nightmare for them to contact each and every one of their customer every time the provided board combination did not meet the expected board combination that was expected prior to starting the test. We believe that the board analysis should be conducted prior to conducting the test especially on periodic retesting.

iv. **If a 3rd-Party or Self- Certified Lab submits a Test Report to their customer (i.e. our customer) listing two –(2) completely different board combinations for the intended outer and/or inner fiberboard components without indicating which board combination should actually be used in producing the certified package. Which board combination should the manufacturing of packaging use to product the component?** Several 3rd-Party and/or Self-Certified Labs have been submit confusing Test Reports to their customers (i.e. our customers). By listing two different board combinations (such as the expected and then a Quality Control Audit result) without any explanation as to which one to was actually used in the performance test.

b. Lack of minimum required data in Test Reports
How can a shipper of hazardous materials (i.e. our customers) ensure themselves that they are meeting their responsibilities when some of the testing facilities they use don't follow the requirements in 49CFR Section 178.601(l)? Over the last several years we have been reviewing customer provided UN 3rd-Party and/or Self-Certified Test Reports prior to manufacturing their certified packaging. And once again found several concerns such as missing names of testing facilities; unique test report identification numbers, and most importantly the a missing test completion date. We are looking for hopefully the final interpretation explaining what information is actually required to appear in a UN Report.

c. **If a shipper is using a currently UN-Certified package (who previously refused to provide the minimum required information to the manufacturer of the packaging) was found by RSPA to be in violation for having a non-specification packaging. What would be the potential**

criminal and/or civil fines accessed to the person who did not provide the proper information the or to the manufacturer of the packaging, the distributor selling the certified package, or actual shipper? There have been several previously recorded Letters of Interpretation regarding the request for customers to provide manufacturers of packaging copies of their complete certifications. RSPA's response has been it should be a contractual agreement between the manufacturer of packaging and the packaging manufacturer (i.e. our customers the shipper). We are requesting once again that RSPA considers at least a minimum amount of data be required to be provided by customers to their suppliers. . To assure that the manufacturer of packaging is not in violation of manufacturing components for a non-certified package. The suggested data should contain at least the following: name of testing the facility, unique test report identification number expected board combinations of the fiberboard components, and the test's completion date.

We consider ourselves a responsible manufacturer of packaging and have asked several of our current customers to provided us this information in the form of an contractual agreement but still they refused (citing several of these Letters of Interpretations) to provide us any information especially the test completion date. We have found the biggest offenders to be those customer who are considered an 3rd-Party Certified Labs who actually Self-Certify their own packages. How can the manufacturer of the packaging protect them from being included in the potential fines without loosing the our customers?

Several of our customers have been questioning the intended/implied packaging descriptions and preparations of packagings and packages during their initial design qualification testing and periodic retesting.

Please provide us with an explainable interpretation so we can provide our customers to end their confusion and reduce their liability during the shipment of their hazardous materials:

Request 2: Preparation of Packagings and Packages (49CFR178.602)
What is the intent of the current law in regards to using non-bulk or bulk samples that are used in the following two –(2) situations which require the samples to be 24-hr precondition and then tested in an uncontrolled environment? Or should the samples be preconditioned for the 24-hrs and then tested in a same conditioned maintained environment as listed in 49CFR178.602(d) and (d)(1) in order to maintained repeatability:

- **Stacking Test (49CFR178.606)**
- **Vibration Standard (49CFR178.608)**

Anyone with a basic understanding of paper and fiberboard realizes as the relative humidity increases (above the specified variance of 5 percent) in the material, the strength of the paper or fiberboard is weakened substantially creating a significant impairment of test reproducibility. Therefore, it is important to conduct the above tests in an environmentally maintained conditioned laboratory for the complete test.

Request 3: Marking of Packagings (49CFR178.503) Some of our customers are under the impression that only one UN Specification Number is allowed to be printed on a Specification Packaging:

a. **If there are multiple UN Specification Markings for different packagings using the same outer can the heaviest Gross Weight Specification Number be used?**

b. **Can a customer only list one of the UN Specification Numbers on their package if there are several identical Self-Certified UN Specification Numbers for different packaging using the same outer packaging? Or do all of the UN Specification Numbers have to be listed on the package?**

Request 4: Standards for Fiberboard Boxes (49CFR178.516)
Is signing Blanket Statements guaranteeing the fiberboard that is used in the outer packaging always "Pass" the 30-min. Cobb Water Absorbency Test legal or not?
Several of our customers who use certain 3rd-Party and/or Self-Certified Labs, require our Box Plants to sign statements assuring the fiberboard used in the packages will always meet the required Cobb Water Absorbency Test. We believe these certifying Labs are making these requests because they may or may not have actually conducted the Cobb Testing during the actual certification testing.

Request 5: General Requirements (49CFR178.601(c)(1) and Preparation of Packagings and Packages (49CFR178.602)

a. If a package was previously design qualification tested with several inner packages that were of the same size and weight making up the gross weight of the package. **How can the certification in question at the time of the periodic retested contained the following possibilities?**
   i. an increased number of inner packagings,
   ii. an increased inner package diameter or height,
   iii. an increased inner package net weight but a lesser number of overall inner packagings

b. Or should this package in question be individually tested in the design qualification manor for each of the above conditions.

Request 6: Drop Test (49CFR178.603) and Static Load Testing (49CFR178.606)
In final rule HM-218 that went into effect on October 1, 2000 several changes were mentioned regarding the changes in the Drop and Static Load Tests. The following questions were raised by some of our customer during their recent design qualification and periodic retests since the actual the changes were listed in the August 18, 2000 Federal Register (65FR50450):

a. Drop Tests (49 CFR178.603 (f)(5)) - now allows a slight discharge from a closure of any type of non-bulk packaging following the drop tests, if it ceases immediately after impact and there is no further leakage; however, what would be the acceptance criteria (pass or failure) in the following conditions:
   i. If the intended package contains the following inner packages a plastic bottle containing the intended hazardous material and a Heat-Sealed Plastic Bag which contains a non-hazardous solid. After the five –(5) individual drops, none of the plastic bottles show signs of failure; however, three –(3) out of the five –(5) drops had the simulated solid leak out of the outer package prior to opening the package. (Note: the poly bag was conditioned in this case at 0

degrees for the required 24-hr. period of time. When the intended package was retested using new inner packaging; only one bag showed signs of leakage out of the package prior to opening when the only the bottles were conditioned at 0 degrees for 24-hrs. The bags were kept in a 73 degree/50 percent conditioned environment and placed into the packages prior to conducting the drop tests.). The customer stated that the package should "pass" in either case (after they called the DOT Hot Line and a 3rd-Party Certified Lab) since the only thing leaking was the non-hazardous inner package.

We believe that the package should be considered a "failure" because in an actual hazardous materials incident any leakage from a properly marked and labeled package would be considered a hazardous materials spill until the leaking material is properly analyzed.

ii. In a different design qualification test a customer's intended package consisted of non-bulk combination inner packagings. During the drop testing several of the outer packages had their inner packages either ejected slightly from or completely through the outer packages (Note: none of the method of closure failed). None of the inner packages leaked; however, the outer package was adversely affected creating a safety concern during transport. Once again, the customer in question would consider the above situation as a "pass" since they were going to self-certify the package themselves and in their original design qualification test, the testing agency considered that type of damage a "pass". How would RSPA judge either of these situations?

iii. How much (percentage of damage in any of the dimensions) of a rip in the outer package would RSPA allow before they would consider the test a "failure".

b. Static Load Tests (49 CFR178.606 (c)(1)) – Can you provide us a clear definition/explanation on what a "guided load test" actually means? We believe it to be when individual weights are applied by hand within some type of fixture, which is placed on top of the intended package. Or could it be considered a mechanical compression table which applies the intended load at a fixed application rate of speed and once it is reached it is held for the required 24-hr. of time.

c. Static Load Tests (49 CFR178.606 (c)(1)) – What would happen if one of our customer's conducted their non-bulk design qualification Static Compression Testing using a compression table which was capable of holding a constant load for the required 24-hrs. under the following conditions:

i. If the customer was originally trained on how to conduct non-bulk design qualification Static Compression Testing using a compression table (with either a fixed or floating platen) without an approval letter by the Associate Administrator for Hazardous Materials Safety to conduct the test that way.

ii. Do the currently certified packages need to be completely retested using dead load weights (loose individual weights applied on top of or within a guided ?

iii. Can the customer request their dynamic compression method (with either a fixed or floating platen) be accepted for non-bulk design

qualification testing by the Associate Administrator for Hazardous Materials Safety after-the-fact.

iv. If the above method was approved would the previously certified packages have to be completely, particularly, or not retested.

v. Can RSPA define/explain in writing the exact type of compression table platen (floating or fixed) that should be used during this type of test since it is not stated in the current regulations?

Request 6: Shipper's Responsibility (49CFR173.22) and the Definition of Hazardous Materials (49CFR171.8)

a. **What would be the potential liability of a 3rd-Party Certified Lab, a Self-Certified Lab, or a manufacturer of packaging, if a customer does not properly classify one of their products and actually ship a hazardous material (by definition only) as a non-hazardous material?** Recently, in a Letter of Interpretation dated April 4, 2000, acetic acid was reviewed and implied to be considered a hazardous material based on the information provided in that particular letter. However, there is a much bigger chemical currently being shipped currently in large amounts potentially illegally. The chemical is citric acid whether it is in its food-grade or not or in a liquid or solid form. Several years ago pure citric acid was tested using the "Invitro Corrositex® Test Method" to determine its corrosivity and results came back as a Packaging Group II product.

b. **How can we as a Self-Certified Lab convince our customers that they are fully responsible to make sure that the products being shipped by them are not really hazardous?** Most shippers in general think, if their product does not show up in the Hazardous Materials Table (49CFR172.101) exactly; they are not then not considered even though the product in question may actually be considered regulated under a Generic Proper Shipping Name listing. A majority of the shippers out do not even have their products tested properly.

An **expedited response** to these problems would be greatly appreciated since it is costing our customers money and may be jeopardizing safe transportation of hazardous materials in commerce.

If you have any further questions, please feel free to contact me by phone at (630)-794-0331 or by fax at (630)-794-0431. A speedy reply would be appreciated. Thank you.

Sincerely,

Richard M Thomas

Richard M. Thomas
Packaging Performance Specialist

cc. - Jim Mackowski, Stone Container Corporation: Marketing and Technical Center - Westmont, IL