



U.S. Department
of Transportation

**Research and
Special Programs
Administration**

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

FEB 11 1998

Mr. Gordon Rousseau
HMT Associates, L.L.C.
1850 K Street, N.W.
Washington, D.C. 20006-3500

Dear Mr. Rousseau:

This is in response to your letter dated January 29, 1998 on behalf of CAT Contracting, Inc., requesting confirmation of the non-applicability of the Hazardous Materials Regulations (49 CFR Parts 171-180; HMR) to a cured-in-place pipe reconstruction material consisting primarily of resin-impregnated felt.

In confirmation of your understanding, this material does not meet the defining criteria for a hazardous material and is not subject to the HMR. This determination is based on the information provided in your letter and the understanding that the material is neither a forbidden material under the provisions of 49 CFR 173.21 nor a hazardous substance as defined in 49 CFR 171.8. If the material is packaged in a quantity wherein the styrene constituent meets or exceeds 1000 pounds, it would be regulated as a hazardous substance.

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

Sincerely,

Edward T. Mazzullo
Director, Office of Hazardous
Materials Standards

HMT ASSOCIATES, L.L.C.

1850 K STREET, N.W.
SUITE 200
WASHINGTON, D.C. 20006-3500

(202) 463-3511

FACSIMILE (202) 463-3512

E.A. ALTEMOS
PATRICIA A. QUINN
GORDON ROUSSEAU

WRITER'S DIRECT DIAL NUMBER

(202) 463-3511

e-mail address
gorrou@pipeline.com

Thursday, January 29, 1998

Ms. J. Suzanne Hedgepeth
Director, Office of Hazardous Materials Exemptions & Approvals
Research & Special Programs Admn.
Department of Transportation
400 7th Street
Washington, DC 20590

Request for confirmation of non-applicability
of DOT Hazardous Materials Regulations
(49 CFR Parts 100-199)

Dear Ms. Hedgepeth:

On behalf of CAT Contracting, Inc., a transporter of a cured-in-place pipe reconstruction material for which some persons have questioned the DOT hazard classification, this is to request confirmation of the company's conclusion that this material, in the form in which it is shipped, is not subject to DOT's hazardous materials regulations for transportation by highway in this country.

A. *Historical information*

To put the issue in proper historical perspective, we wish to provide you initially with some background information which we believe will be helpful in your understanding of the situation. Note that as a result of some confusion late last year, a DOT exemption E-11979, was issued for this product but it is no longer in effect (copy attached). As explained in this letter, we believe that the exemption was issued due to pressures of the moment to complete a vital waterworks installation. CAT Contracting, Inc. was unable to gather up in a sufficiently prompt manner the history of its product for which it is a licensee, and thereby the necessary background information that would have permitted DOT to make a more complete assessment of the circumstances. If this had been done, it is our belief that an exemption would not have been necessary.

A few years ago, when employed in the law firm of Lawrence W. Bierlein, P.C., the writer worked with DOT on a project to evaluate the application of the DOT regulations to a product which could be described as the raw material state of Cured-In-Place Pipe (CIPP). This activity preceded DOT Docket HM-181. At that time, in cooperation with DOT staff and following its

Alan I. Roberts
Associate Administrator
Office of Hazardous Materials Safety
Thursday, January 29, 1998
Page 2

study of the product, it was concluded that the material in question was not considered subject to the DOT hazardous materials regulations. A copy of the exchange of correspondence that took place is attached.

This same material which is the subject of this letter has not substantially changed from when it was first reviewed by DOT. Informational literature about the material and the construction process in which it is used, is also enclosed. For a more detailed presentation of how the need for this technology arose and a more precise description of the material components, DOT staff is referenced to the White Paper by Doug Kleweno (enclosed).

Since that first contact with DOT, however, we acknowledge that new rules under DOT Docket HM-181 have been adopted, certain pertinent hazard class definitions have been changed, and a new regulated category called marine pollutants has been added to the DOT regulations. The class definition pertinent to this material is Class 4.1 which is now defined by use of a quantitative definition against which any questions concerning proper hazard classification of the subject material must be measured. It is clear, therefore, that to determine the present application of the DOT regulations, re-assessment of the earlier decision is reasonable and should be done. The company has done this.

B. *Description of material*

The material in question consists of a variable number of felt layers impregnated with resin which are transported encased in sealed plastic tubing in a closed refrigerated vehicle, from the manufacturing site to the application site. Typically, this transportation takes place over a public roadway. No free liquid in the tubing is present at any time during transportation, or during handling prior to or following transportation. All transportation of the material is done as part of the manufacturing and application process. No product is transported as commercial goods for sale or as freight for delivery to other persons. No other chemicals or products are transported in the vehicle transporting the subject tubing. The manufacturer of the product is the user. Also, such materials are always manufactured locally for application in the immediate vicinity, typically not exceeding 3 or 4 hours transportation time from the installation site. From a practical standpoint, it is not feasible nor efficient typically, to have material to be installed produced further away than 150 miles from the installation site.

The material itself consists of resin impregnated felt contained in long, thick, flexible plastic film, vacuum-sealed tubes that are destined to become the interior lining of existing pipeline or sewer installations. The prepared product as transported consists of a tube ranging from 6 to 96 inches in diameter. (Larger diameters, due to the weight of the finished product, are produced on site.) A vacuum is pulled on the tube during the manufacturing process to insure full absorption of resin into the felt when the resin is introduced into the tubular bags. When the tubing is manufactured the felt is pressed (pinched) by heavy rollers which squeeze the resin into the felt to assure even distribution as the tubing is fed through the rollers. The resin in the tube is totally impregnated into the felt material lining the plastic tube. No free liquid resin is in the tube. The finished product, by weight, consists of 55% resin, 31% styrene, 1% Percadox™ and 13% felt. Volumetrically, of course, it is mostly felt.

Alan I. Roberts
Associate Administrator
Office of Hazardous Materials Safety
Thursday, January 29, 1998
Page 3

The impregnated tubing is loaded by hand into the vehicle as it is made which permits on-going inspection at the final moment of loading. No mechanization is involved to assure that the tube remains completely intact. In the recollection of the company during all the years that it has performed this operation, it has never encountered any tears or cuts to the tube. However, the vehicle crew has been trained in methods to reseal the tube should it become damaged. Damaged tubing is never loaded into the vehicle since the complete integrity of the tubing is paramount to the success of the installation. In addition, should it happen (it has not to date) that the tube had a tear or hole in place, the resin impregnated in the material would not flow. Again, there is no free liquid present so that even when the bottom of the tube is subjected to the heavy pressure (crushed) from being loaded five or six feet high into the vehicle, should it be damaged, it will not spill resin. During transportation the resin-impregnated felt material is completely enclosed in vacuum-sealed plastic tubing.

To prevent unwanted or premature curing, the material is further placed in a refrigerated vehicle, which also is loaded with bags of ice that are placed between the tube folds during loading. The use of ice and/or refrigeration is not related in any way to preventing or avoiding the development of a hazardous condition. In fact, in our earlier discussion with DOT in 1987, you will note that we did conduct an experiment in which a load was allowed to cure while in the vehicle to demonstrate that no hazardous condition would result if such an incident did occur. This test is described below.

When the material is loaded on the vehicle, it is loaded in tubular bags which are sealed to the degree such that when the tube is removed from the vehicle and is inserted into the underground pipe to be repaired, it remains completely sealed until, at the site, one end is cut and attached to a standpipe placed inside of the manhole being used. The end that is cut typically has about 3 or 4 feet of unimpregnated plastic-wrapped felt so that no significant, if any, resin exposure occurs to either personnel or the environment. The other end remains sealed. A calibration hose consisting of a plastic felt lined plastic tube is then inserted into the standpipe and by water pressure is inverted and pushed through the plastic exterior-lined resin impregnated tube. Once the calibration hose has been forced in place to the end of the resin impregnated tube, hot water is then circulated through the calibration hose. The process consists of forming the shape and size of the new pipe by water pressure on the resin impregnated felt-lined tube by the calibration hose placed inside, which circulates first cold water under pressure and then hot water. This sets the resin curing and hardening process into action. The entire process remains sealed to the environment thus avoiding completely any styrene exposure or spillage.

C. *Hazard Classification of resin impregnated felt-lined tube*

The company has again investigated the application of the DOT hazardous materials regulations to its product. After review of the various classes and their definitions, and in view of the fact that at no time is any free liquid present nor can be present, it concluded that the only possible hazard classification to examine would be the potential for fire as from a flammable solid (Division 4.1) or the risk of a reaction that might produce a dangerous heat of reaction, flammable gases or dangerous pressure (§ 173.21). It has examined these possibilities.

Alan I. Roberts
Associate Administrator
Office of Hazardous Materials Safety
Thursday, January 29, 1998
Page 4

Cat Contracting contacted the Southwest Research Institute and requested that it conduct flammability testing as described in the DOT regulations for Division 4.1, flammable solids, § 173.124 and 173.125. The Packing Group for these materials was to be evaluated according to test results following test methods given in the UN Manual of Tests and Criteria. The methods describe a preliminary screening test which includes a burning rate, all of which is described in Figure 33.2.1.3, *Flow Chart for Assigning Readily Combustible Solids, except metal powders, to Division 4.1* and 33.2.1.4.3, *Procedure Preliminary Screening Test* from the Manual. By this preliminary screening test, it can be determined if one should proceed further in the classification evaluation. The products of concern include two varieties of tubes, a *polyethylene* pre-polymer "cured-in-place" pipe liner and another called a *polyurethane* pre-polymer "cured-in-place" pipe line, each referred to by the trade name "Interliner™ USA". Tests were conducted on both types and the test results are attached with this letter. In both cases, the preliminary screening test revealed that

- (1) ignition of the polyethylene material occurred after application of a burner flame for 3 seconds and continued to burn at the rate of 1.2 mm/sec and reached the 140 mm mark at the end of the 2-minute period.
- (2) ignition of the polyurethane material occurred after application of a burner flame for 9 seconds and continued to burn at the rate of 1.0 mm/sec and reached the 150 mm mark at the end of the 2-minute period.

The UN test manual states that if the substance does not ignite and propagate combustion either by burning with flame or smoldering along 200 mm of the train within the 2-minute test period, then the substance should not be classified as a flammable solid and no further testing is required. The tests reports enclosed so conclude.

D. *Risk assessment regarding vehicle loaded with resin impregnated tube*

Whenever questions have arisen about the potential of this material for any significant hazard risk to property or persons, there has been concern about the reaction that takes place and the heat and products of reaction that might be generated by the material should it react through exposure to heat and begin to cure, i.e., to solidify. This evaluation was conducted in 1987 when DOT was first approached about this material and was reported in our letter of October 23, 1987 to Mr. E. Mazzullo of your Office. I summarize the excerpt of that report here.

Based on a recommendation by your Mr. C. Schultz, the company involved at the time, Insituform, reported using a

"worst case transportation situation. For this we hypothesized a circumstance with no ice or refrigeration, with the temperature reaching 130°F inside the vehicle. As would be expected, the material reacted and deteriorated due to heat. The highest temperature found and measured in this reaction was 213°C."

Alan I. Roberts
Associate Administrator
Office of Hazardous Materials Safety
Thursday, January 29, 1998
Page 5

"The highest level of styrene vapors under such conditions was determined to be approximately 400 ppm, still well below flammability limits. The reacted material became a hardened mass and, of course, was completely unusable. There was no unusual or hazardous activity during the reaction. Such a material can be removed from the vehicle without risk nor does the vehicle suffer any damage."

This test was complete and more unusual than typical in that an actual vehicle was used for the test and involved actual packaging and an amount of "multiple" packaging, so to speak, such as would be shipped in day-to-day circumstances. Thus, no extrapolation was used in considering the result as acceptable. This was a life-size test.

E. *Lack of potential for spillage of resin*

Insofar as a styrene-containing material might be questioned for regulation as a marine pollutant, we examined the potential for spillage of this totally impregnated form of the material while on the vehicle and the realistic potential for any entry into a waterway. As indicated above, the installation of the pipe at the site is conducted in such a manner that there is no opening of the tube except at the end at which several feet of non-impregnated felt is located, and this opening is done on the site after transportation has ceased and the manufacturing operation commenced. Hence, the resin-impregnated felt does not come into contact with any persons, objects or the environment. Once impregnated into the felt, free styrene is not released even when exposed to heavy pressures such as might be encountered by the stacking of the tube in the vehicle for transportation to the application site. Should a tear develop in the tube, which as we noted in many years of operation has never happened, no liquid exudes from the stacked tube. There can be a small release of vapor from the exposed material at the location of the hole.

F. *Hazard classification conclusion*

In 1987, another company, Insituform™ obtained confirmation from DOT that the material in question was not considered to be subject to the DOT regulations. Since that time, while there have been changes in the regulations, examination of the changes against the properties of the material have caused CAT Contracting, Inc., likewise to arrive at the conclusion that there should be no reason for change in the original DOT position. It believes that DOT should have no objection to continued transportation of the product described above as a non-DOT regulated material.

Because of the recent "alert" in California and the pressure exerted on the company to obtain DOT authorization for continued transportation a few months ago, the company was forced by the stress of circumstances to obtain a DOT exemption, i.e., DOT-E 11979, since the completion of a job was in jeopardy. Since obtaining this exemption which has now expired, the company learned of the former DOT decision. For this reason, it mounted a complete re-evaluation. As a result, it now requests that DOT acknowledge that an exemption is not necessary inasmuch as it would be appropriate for the company to consider the material as not being subject to the DOT regulations.

Alan I. Roberts
Associate Administrator
Office of Hazardous Materials Safety
Thursday, January 29, 1998
Page 6

The action that had led to the decision for an exemption request of DOT had been fostered by on-site inspectors in California. Since that time, and after learning of the history attached to this material and DOT's earlier view, California has decided to review the situation afresh but now wishes to have in hand DOT's determination before proceeding further.

Consequently, to address the State of California's present concern, and the potential concern of other federal, state and local officials, Cat Contracting, Inc., requests DOT's re-confirmation that the company, as the responsible shipper for the product, has properly exercised its responsibility as provided by DOT regulation in making its determination of a non-DOT hazard classification for transportation of this material.

Sincerely,



Gordon Rousseau

Enclosure

cc: Mr. Alan I. Roberts,
Associate Administrator, Office of Hazardous Materials Safety

Mr. E. Mazzullo,
Director, Office of Hazardous Materials Standards

Alan I. Roberts
Associate Administrator
Office of Hazardous Materials Safety
Thursday, January 29, 1998
Page 2

study of the product, it was concluded that the material in question was not considered subject to the DOT hazardous materials regulations. A copy of the exchange of correspondence that took place is attached.

This same material which is the subject of this letter has not substantially changed from when it was first reviewed by DOT. Informational literature about the material and the construction process in which it is used, is also enclosed. For a more detailed presentation of how the need for this technology arose and a more precise description of the material components, DOT staff is reference to the White Paper by Doug Kleweno.

Since that first contact with DOT, however, we acknowledge that new rules under DOT Docket HM-181 have been adopted, certain pertinent hazard class definitions have been changed, and a new regulated category called marine pollutants has been added to the DOT regulations. The class definition pertinent to this material is Class 4.1 which is now defined by use of a quantitative definition against which any questions concerning proper hazard classification of the subject material must be measured. It is clear, therefore, that to determine the present application of the DOT regulations, re-assessment of the earlier decision is reasonable and should be done. The company has done this.

B. *Description of material*

The material in question consists of a variable number of felt layers impregnated with resin which are transported encased in sealed plastic tubing in a closed refrigerated vehicle, from the manufacturing site to the application site. Typically, this transportation takes place over a public roadway. No free liquid in the tubing is present at any time during transportation, or during handling prior to or following transportation. All transportation of the material is done as part of the manufacturing and application process. No product is transported as commercial goods for sale or as freight for delivery to other persons. No other chemicals or products are transported in the vehicle transporting the subject tubing. The manufacturer of the product is the user. Also, such materials are always manufactured locally for application in the immediate vicinity, typically not exceeding 3 or 4 hours transportation time from the installation site. From a practical standpoint, it is not feasible nor efficient typically, to have material to be installed produced further away than 150 miles from the installation site.

The material itself consists of resin impregnated felt contained in long, thick, flexible plastic film, vacuum-sealed tubes that are destined to become the interior lining of existing pipeline or sewer installations. The prepared product as transported consists of a tube ranging from 6 to 96 inches in diameter. (Larger diameters, due to the weight of the finished product, are produced on site.) A vacuum is pulled on the tube during the manufacturing process to insure full absorption of resin into the felt when the resin is introduced into the tubular bags. When the tubing is manufactured the felt is pressed (pinched) by heavy rollers which squeeze the resin into the felt to assure even distribution as the tubing is fed through the rollers. The resin in the tube is totally impregnated into the felt material lining the plastic tube. No free liquid resin is in the tube. The finished product, by weight, consists of 55% resin, 31% styrene, 1% Percadox™ and 13% felt. Volumetrically, of course, it is mostly felt.