



U.S. Department
of Transportation

**Research and
Special Programs
Administration**

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

JAN 30 1998

Mr. John V. Currie
President
Currie Associates, Inc.
1118 Bay Road
Lake George, NY 12845-4618

Dear Mr. Currie:

This is in response to your letter of August 18, 1997, concerning the proper shipping name for the material "di-tert butylphenol", a member of the "alkylphenols" chemical group.

You indicate that the melting point has been determined to be 51.7°C (125°F) to 56.5°C (134°F) for 2,4-di-tert butylphenol and 36°C (96.8°F) to 37°C (98.6°F) for 2,6-di-tert butylphenol. You further indicate that this material is heated and offered for transportation at a temperature of 43.3°C (110°F) to 60°C (140°F) to facilitate loading and unloading operations.

You point out that a "liquid," as defined in 49 CFR 171.8, means a material other than an elevated temperature material, with a melting point or initial melting point of 20°C (68°F) or lower at a standard pressure of 101.3 kPa (14.7 psi). An "elevated temperature material" means a material which, when offered for transportation or transported in a bulk packaging: (1) is in a liquid phase and at a temperature at or above 100°C (212°F); (2) is in a liquid phase with a flashpoint at or above 37.8°C (100°F) that is intentionally heated and offered for transportation or transported at or above its flashpoint; or (3) is in a solid phase and at a temperature at or above 240°C (464°F).

Your questions are paraphrased and answered as follows:

Q1. Is it correct that this material meets the definition for a solid rather than a liquid, does not meet the definition for an elevated temperature material and, for a formulation which meets the definition for Class 8, would correctly be described as "Alkylphenols, solid, n.o.s."?

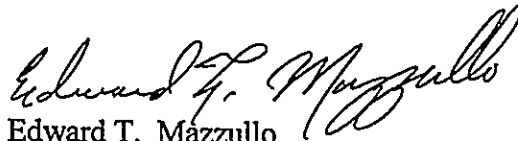
A1. Yes.

- Q2. The proper shipping name "Alkylphenols, solid, n.o.s." is not listed among the n.o.s. descriptions in § 172.203(k). Does this mean that a technical name is not required in association with the basic description?
- A2. Yes. "Alkylphenols, solid, n.o.s." is a descriptive chemical name and there is no requirement to further identify the technical constituents of the material.
- Q3. For purposes of international transportation by vessel, would the material be considered a solid?
- A3. Yes. The tests for determining whether a material is a "liquid" or a "solid" are the same under both the HMR and the International Maritime Dangerous Goods (IMDG) Code.
- Q4. Alkylphenols are a listed marine pollutant. For purposes of international transportation by vessel, if a particular alkylphenols formulation does not meet the definition for Class 8, or any other hazard class, should it be described as "Environmentally hazardous substances, solid, n.o.s., Class 9, UN3077?"
- A4. Yes. The marine pollutant regulations in 49 CFR, which are based on the IMDG, identify specific chemicals and certain NOS listings as marine pollutants in Appendix B. The Appendix B list was developed on the basis of marine pollutant classification decisions taken by the International Maritime Organization and by the Joint Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP). Under both the IMDG Code and the 49 CFR requirements, a material which meets the criteria for Class 8 and would be transported under the description "Alkylphenols, solid, n.o.s." is a marine pollutant. In the case of mixtures or solutions of alkylphenols which in the pure form meet the criteria for Class 8, if the concentration of the alkylphenols meeting Class 8 criteria is 10% or more, the mixture or solution would be considered a marine pollutant, regardless of whether the mixture or solution met the criteria for Class 8. When these mixtures and solutions do not meet the criteria for Classes 1 through 8, they should be transported under the appropriate Class 9 description for environmentally hazardous substances.

In the situation which you describe, a material which meets the definition for a solid is offered for transportation and transported in liquid form. Use of packagings appropriate for a material in liquid form is addressed in § 172.101(i)(4). Also, this office is concerned that using a shipping description that identifies the material as a solid may not convey appropriate information to emergency responders concerning the ability of the material to readily flow. To more accurately describe the material, the shipper may want to include additional information on the shipping paper concerning the physical state of the material. Alternatively, the shipper may want to request an approval, under the provisions of § 172.101(l)(2), to describe the material in domestic transportation using a shipping description which includes the word "liquid", such as "Alkylphenols, liquid, n.o.s."

I hope this information is helpful and I apologize for the delay in responding. If we can be of further assistance, please contact us.

Sincerely,

A handwritten signature in cursive script that reads "Edward T. Mazzullo". The signature is written in black ink and is positioned above the printed name.

Edward T. Mazzullo
Director, Office of Hazardous
Materials Standards



Kain
File: 172-101(a)
SC: 170, 174

CURRIE ASSOCIATES, INC.
THE GLOBAL COMPLIANCE PROFESSIONALS

August 18, 1997

Mr. Alan I. Roberts
Associate Administrator for Hazardous Materials Safety
United States Department of Transportation
Research and Special Programs Administration
400 Seventh Street S.W.
Washington, DC 20590

Dear Mr. Roberts:

On behalf of a client, I am soliciting an interpretation from your administration regarding the proper description on the shipping paper accompanying a shipment of a hazardous material when offered in transportation. The material at issue is "Di-tert butylphenol" which is not listed by technical name in the §172.101 Table but is a member of the "Alkylphenols" chemical group. Alkylphenols is a listed proper shipping name either as a liquid UN3145 or as a solid UN2430.

The definition of a liquid in 49 CFR states "*Liquid* means a material, other than an elevated temperature material, with a melting point or initial melting point of 20°C (68°F) or lower at a standard pressure of 101.3 kPa (14.7 psi). A viscous material for which a specific melting point cannot be determined must be subjected to the procedures specified in ASTM D 4359 'Standard Test Method for Determining Whether a Material is Liquid or Solid'."

The melting point of Di-tert butylphenol has been determined to be 51.7°C (125°F) to 56.5°C (134°F) for 2,4-di-tert-butylphenol and 36°C (96.8°F) to 37°C (98.6°F) for 2,6-di-tert-butylphenol. Therefore, the material does not meet the regulatory definition of a liquid and must then be classified as a solid. The material is heated and offered for transportation at a temperature of 43.3°C (110°F) to 60°C (140°F) to facilitate greater efficiency in loading and unloading operations with a loss in transit of up to 4°F per day, but does not meet the regulatory definition of an elevated temperature material since it is not heated to a temperature of 100°C or more in the liquid phase or 240°C in a solid phase.

Based on the above, is it a correct interpretation of the regulations that the material at issue is a solid and would correctly be described as "Alkylphenols, solid, n.o.s." with no further technical name description required since "Alkylphenols, solid, n.o.s." is not listed in §172.203(k)(3) of 49 CFR?

Class 9
2650F

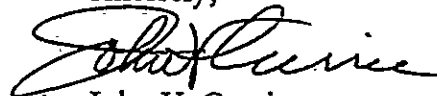


For the purpose of uniformity, when intended for international transportation by water and classified per the International Maritime Dangerous Goods Code, this material would again be classified as a solid since it does not meet the definition of a liquid in IMDG, General Introduction 5.1.10, with a melting point of 20°C or lower at a pressure of 101.3 kPa.

Since Alkylphenols are also a listed marine pollutant, if the particular Alkylphenols formulation did not meet the definition of a Class 8, corrosive material, is it a correct assumption that the proper shipping description would then be "Environmentally hazardous substance, solid, n.o.s." in Class 9 and would be identified by the identification number UN3077?

I would like to thank you in advance for your prompt response to this inquiry which is very important to my client.

Sincerely,

A handwritten signature in black ink, appearing to read "John V. Currie". The signature is fluid and cursive, with a large initial "J" and "C".

John V. Currie
President

Follow up
Crab

Date: 3/3/97

Total Pages (1/6)

FAX #: (202) 366-5713

Gail 5/27
Please check
on status.
BJ

To: AL ROBERTS

DOT - RSPA

WASHINGTON, DC

**From: Thomas C. Reese
DuPont Company
Hazardous Materials Distribution D-3062-3
Wilmington, DE 19898
Phone #: (302) 773-0696
FAX #: (302) 774-8897**

Comments: Attached is a copy of the letter we
discussed th, afternoon. Also included is
a copy of the MSDS.

Thomas Al

Tom Reese

Re-assigned to
Jodi 4/16/97

Del signed grid 5/23
to Tech (DHM-ZU) 5/28

Diane

6/25/96

MR. EDWARD MAZZULLO
OFFICE OF HAZARDOUS MATERIALS STANDARDS (DHM-10)
U.S. DEPARTMENT OF TRANSPORTATION
RESEARCH AND SPECIAL PROGRAMS ADMINISTRATION
400 SEVENTH STREET SW
WASHINGTON, DC 20590-0001

Dear Sir:

E.I. duPont de Nemours and Company, Inc. (DuPont) manufactures a commodity identified as BHMT AMINE BLEND (BAB). BAB is a mixture of 2-Methylpentamethylenediamine, Bis(Hexamethylene)triamine, 1,2-Diaminocyclohexane, Hexamethylenediamine, and various identified and unidentified amines and nitriles (refer to enclosed MSDS for a detailed compositional breakdown of BAB).

BAB is an alkaline material meeting the definition for a class 8 corrosive, in packing group 11. It does not meet the criteria for any other hazard class. DuPont has determined that the melting point for this commodity ranges from 2 to 34 degrees Celsius (C). BAB is: shipped slightly warm to keep it liquefied, not an elevated temperature material, not a hazardous substance, and not a marine pollutant.

Recent changes to our national, and the various international, safe transportation regulations adopted new definitions for a liquid and a solid. In addition, proper shipping names which include modifiers like acidic, basic, organic, inorganic, liquid, and solid were added to the 49CFR172.101 table. These changes and additions make choosing the correct proper shipping name for a commodity like BAB very difficult. This is also true for other materials which have multiple melting points within a range that includes the 20 C threshold value found in the current definition for a liquid. Applying the new liquid definition to these unique materials is not only a challenge but also very confusing. Any decision is subject to a different interpretation by local, national and international enforcement agencies, as well as carriers, other shippers, customers, and DuPont's internal ship points.

DuPont's computer systems used for order processing contain databases for generating a shipping description on a Bill of Lading. The databases can not accommodate two different UN identification numbers and proper shipping names to describe a single commodity, like BAB, that can change its physical form from a liquid to a solid, and back again, with each shipment.

- 1) Is it acceptable to use one UN identification number and proper shipping name to describe all shipments of BAB regardless if some meet the definition for a liquid, and others meet the definition for a solid?
- 2) Which proper shipping name is appropriate to apply to shipments of BAB?
- 3) Can DOT provide guidance on classifying materials as a liquid or solid when the materials are known to exhibit multiple melting points over a range that includes the 20 C threshold value?


Please discuss this matter with Frits Wybenga and Bob Richard. They may have some information, or insight, regarding discussions at the various United Nations organization meetings they attended to debate the definitions for a liquid and a solid .

My telephone number is (302) 773-0696.

My mail address is: E.I. duPont de Nemours and Company, Inc.
10th & Market Streets
Hazardous Materials Distribution
DuPont Sourcing/D-3062-3
Wilmington, DE 19898

Your comments and guidance will be very much appreciated.

Sincerely yours,


Thomas C. Reese
Senior Hazardous Materials Specialist

DuPont
Material Safety Data Sheet

Page 1

 BHMT AMINE BLEND
 6050CR Revised 28-SEP-1996 Printed 3-MAR-1997

 CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

Corporate MSDS Number : DU005970

Company Identification

MANUFACTURER/DISTRIBUTOR

DuPont
1007 Market Street
Wilmington, DE 19898

PHONE NUMBERS

Product Information : 1-800-231-0998
 Transport Emergency : CHEMTREC: 1-800-424-9300
 Medical Emergency : 1-800-441-3637

 COMPOSITION/INFORMATION ON INGREDIENTS

Components

Material	CAS Number	%
1,2-DIAMINOCYCLOHEXANE	694-83-7	8-64
BIS(HEXAMETHYLENE)TRIAMINE	143-23-7	5-60
2-METHYLPENTAMETHYLENEDIAMINE	15520-10-2	0-16
HEXAMETHYLENEDIAMINE	124-09-4	1-32.6
CAPROLACTAM	105-60-2	0.6-4
2-(AMINOMETHYL)CYCLOPENTYLAMINE	21544-02-5	0-4
6-AMINOCAPRONITRILE	2432-74-8	0.2-2.4
6-AMINOCAPROAMIDE	373-04-6	0.2-2.4
WATER	7732-18-5	0-12
HEXAMETHYLENEIMINE	111-49-9	0-4
*AMMONIA	7664-41-7	0-4
*BENZENE	71-43-2	<0.26
OTHER UNIDENTIFIED AMINES AND NITRILES**		1.2-56
DECANEDIAMINES (PRIMARY 1,10 ISOMER)		0-4

* Disclosure as a toxic chemical is required under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

Components (Remarks)

**These amines and nitriles consist primarily of:
 oligomeric polyamines, oligomeric aminonitriles, and
 aminoalkylhexahydroazepines.

6050CR

DuPont
Material Safety Data Sheet

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HAZARDS IDENTIFICATION

Potential Health Effects

May cause burns of the skin and eyes. May cause allergic skin rashes. Harmful if inhaled or absorbed through the skin. Ingestion may cause severe burns of the mouth and upper gastrointestinal tract. This product contains low amounts of benzene, a cancer agent.

HUMAN HEALTH EFFECTS:

Skin contact may cause skin burns or ulceration. Animal data suggests this material may cause allergic skin rashes. Animal data suggests that skin permeation can occur in amounts capable of producing systemic toxicity. Eye contact may cause eye corrosion with corneal or conjunctival ulceration. Inhalation may cause irritation of the upper respiratory passages with coughing and discomfort. Ingestion may cause severe burns of the mouth and tissues of the upper gastrointestinal tract with severe pain, bleeding, vomiting, diarrhea and collapse of blood pressure.

CAPROLACTAM

May irritate skin, eyes, nose and throat. May cause allergic skin rashes. May permeate skin in toxic amounts. Inhalation may cause nausea, headache, weakness, dizziness, confusion, incoordination and loss of consciousness. Repeated exposure may cause asthma-like reactions, liver abnormalities, cardiovascular effects and abnormal blood test results.

INHALATION

Human experience or case reports have identified the following potential effects from overexposure: Irritation of the nose and throat with sneezing, sore throat or runny nose. Irritation of the digestive tract with stomach pain, heartburn, nausea, vomiting or diarrhea; however there may be no symptoms at all. Liver abnormalities. Central nervous system depression with dizziness, confusion, incoordination, drowsiness or unconsciousness. Repeated and/or prolonged exposure may cause: An asthma-like reaction with shortness of breath, wheezing or cough, which may occur after re-exposure to very low levels. Liver abnormalities. Cardiovascular effects. Abnormal blood test results, especially altered hormone levels.

SKIN CONTACT

Human experience or case reports have identified the following potential effects from overexposure: Irritation with itching, burning, redness, swelling or rash. Dermatitis with itching or rash. Skin permeation may occur in amounts

6050CR

DuPont
Material Safety Data Sheet

Page 3

(HAZARDS IDENTIFICATION - Continued)

capable of producing the effects of systemic toxicity.

EYE CONTACT

Eye irritation with tearing, pain or blurred vision.

ADDITIONAL HEALTH EFFECTS

Increased susceptibility to the effects of this material may be observed in persons with pre-existing disease of the: central nervous system, skin, lungs.

Carcinogenicity Information

The following components are listed by IARC, NTP, OSHA or ACGIH as carcinogens. A "P" indicates a proposed carcinogen.

Material	IARC	NTP	OSHA	ACGIH
BENZENE	X	X	X	X

DuPont controls the following materials as potential carcinogens:
BENZENE.

FIRST AID MEASURES

First Aid**INHALATION**

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

SKIN CONTACT

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician. Wash contaminated clothing before reuse.

EYE CONTACT

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

INGESTION

If swallowed, do not induce vomiting. Immediately give 2 glasses of water or activated charcoal slurry. Call a physician immediately. Never give anything by mouth to an unconscious person.

NOTE:

6050CR

DuPont
Material Safety Data Sheet

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(FIRST AID MEASURES - Continued)

To prepare activated charcoal slurry, suspend 50 grams activated charcoal in 400 mL water and mix thoroughly. Give 5 mL/kg of body weight, or 350 mL for an average adult.

Notes to Physicians

After ingestion, the patient may improve after the initial crisis but perforation of the gastrointestinal tract may occur 2-4 days later with severe abdominal pain, rigidity and tenderness of the abdomen and shock. Weeks to months later, stricture of the esophagus may occur.

FIRE FIGHTING MEASURES-----
Flammable Properties

Flash Point : 75-121 C (167-250 F)

Combustible. Heating can release vapors which can be ignited. Hazardous gases/vapors produced in fire are carbon monoxide, oxides of nitrogen and highly toxic cyanide fumes.

Extinguishing Media

Water Spray, Foam, Dry Chemical.

Carbon Dioxide (CO₂).

Fire Fighting Instructions

Keep personnel upwind and upwind of fire. Wear self-contained breathing apparatus and wear full protective equipment. Cool tank/container with water spray.

Hose with water from distance to prevent splashing on personnel.

ACCIDENTAL RELEASE MEASURES-----
Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Evacuate personnel and thoroughly ventilate area, use self-contained breathing apparatus.

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

Friday, November 21, 1997

Mr. Edward T. Mazzullo
Director
Office of Hazardous Materials Standards
Research & Special Programs Admn.
Department of Transportation
Washington, DC 20590

Dear Mr. Mazzullo:

On September 18, 1997, because of a disagreement between two shippers about the correct description to be used in the cargo tank transportation of a liquid hazardous material, we wrote you for guidance. (For your convenience, a copy of the earlier correspondence is attached.) The company we represent believes that a material being transported in a cargo tank in liquid form should be described using a DOT description that communicates that the material is in liquid form. Another company insists that, notwithstanding that the material is in liquid form during transportation, the shipper must describe it as a solid.

Our letter was written because this other company advised us that it had written to you and were awaiting your reply. With our letter to you, we enclosed a copy of their letter so advising us (without identification of the writer), which opened: "To follow up on our conversation of last week, I wanted to share with you the basis of our submission to the US Department of Transportation(DOT)." It now develops that the company never sent any letter to DOT. Rather, they advised recently that the basis for their position is a conversation in which its consultant received "verbal confirmation of this from DOT, RSPA, Office of Hazardous Materials Standards in February 1995," i.e., "the physical form of a material at 20°C will determine it's description as a solid, even when it is shipped molten." No further information is given about the DOT contact or what was discussed. For your information, the "molten" form in question is a liquid being shipped at approximately 65°C and which has a melting point in the 51° to 57°C range. The material in question does not meet DOT's definition for an elevated temperature material.

Our position seems to have been confirmed earlier in the enclosed letter by your Mr. Billings, dated May 30, 1997, to the DuPont company.

The company we represent is a manufacturer of the product. The company that held the "solid" position will soon be buying material from our client and wants to require our client to offer them the material for transportation in liquid form at 65°C, described as a solid. They state that this is required by the regulations. The company we represent feels that this is wrong and that it could lead to serious hazard communication and response problems.

HMT ASSOCIATES, L.L.C.

Edward Mazzullo
Office of Hazardous Materials Standards
Friday, November 21, 1997
Page 2

We explained in our earlier letter that we acknowledged that there could be some ambiguity about the application of the definition for liquids. Other rules, however, make it clear that the intent of DOT is when transporting a material in the free liquid state, it should be described as a liquid not a solid.

Could we receive your written confirmation that insofar as concerns the material described in our letter, it is DOT's intent that a material transported in liquid form should be described during transportation as a liquid. To aid in reducing your workload, a suggested reply is attached together with a 3.5" floppy disk in WordPerfect format containing the attached draft letter.

We thank you for your assistance in this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "Gordon Rousseau", written over a horizontal line.

Gordon Rousseau

Enclosure

cc: D. Billings, RSPA/OHM

Gordon Rousseau
HMT Associates, L.L.C.
1850 K Street NW
Suite 200
Washington, DC 20006

Dear Mr. Rousseau:

This is in response to your letter of November 20, 1997, regarding the shipment of a heated hazardous material in liquid form within a cargo tank. The material is described as having a melting point in the range of 51° to 57°C, and is transported at approximately 65°C so that it is in a liquid state during its entire transportation cycle.

This letter is to advise that it is DOT's intent that a hazardous material transported in liquid form should be described during transportation as a liquid using an appropriate shipping description as required by 49 CFR § 172.101.

I hope that this information is helpful. If you need additional assistance, do not hesitate to 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

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E.A. ALTEMOS
PATRICIA A. QUINN
GORDON ROUSSEAU

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e-mail address
gorrou@pipeline.com

Thursday, September 18, 1997

Mr. Edward Mazzullo
Director
Office of Hazardous Materials Standards
Research & Special Programs Admn.
Department of Transportation
Washington, DC 20590

Dear Mr. Mazzullo:

This letter concerns the transportation of a material that is heated before loading causing it to turn to liquid and then is transported in this liquid state to destination. However, this material does not meet the definition of an elevated temperature material. The melting point of the material, however, is higher than the temperature given in the DOT definitions in § 171.8 for liquid and liquid phase, respectively, i.e.,

“Liquid means a material, other than an elevated temperature material, with a melting point or initial melting point of 20°C (68°F) or lower at a standard pressure of 101.3 kPa (14.7 psi). A viscous material for which a specific melting point cannot be determined must be subjected to the procedures specified in ASTM D 4359 ‘Standard Test Method for Determining Whether a Material is Liquid or Solid’.

“Liquid phase means a material that meets the definition of ‘liquid’ when evaluated at the higher of the temperature at which it is offered for transportation or at which it is transported, not at the 37.8°C (100°F) temperature specified in ASTM D 4359-84.”

A client has inquired as to the correct description for this higher melting point material inasmuch as it believes that the proper description to be used should be that one of two alternative descriptions that contains the word “liquid”. A similar description exists for this same material in the solid state at which time the word “solid” must appear as part of the DOT proper shipping description. The melting point of the material in question is approximately 51°C (125°F) to 57°C. (134°F).

We believe that on the basis of the requirements set forth in § 172.101(c)(10)(i)(A), it is DOT's intent that the actual physical state of the material during transportation is what should be used to assess and select the appropriate shipping name and packaging. I believe that it further is DOT's intent, based on the wording of § 173.24(e)(5), that a material which may be in a liquid

Edward Mazzullo
Office of Hazardous Materials Standards
Research & Special Programs Admn.
Thursday, September 18, 1997
Page 2

state during transportation must be loaded into packaging that is capable of containing a liquid material. Thus, there can be no mistake about the fact that the packaging used for any substance that is liquid during transportation must be an appropriate packaging for liquid containment without, admittedly, specifying that it must be DOT specification packaging appropriate for liquids. It would, nevertheless, need to conform to required specification packaging requirements for the named material as shown in the DOT hazardous materials table.

The issue of the appropriate specification packaging to be used is not a question in the instant situation. Rather, the question revolves solely around the selection of the proper DOT shipping name and, I might add, how that DOT shipping name communicates the nature of the material being transported. This is important since many decisions including those related to packaging, handling on a vehicle and emergency response can well stem from the choice made.

Based on all these considerations, we believe that a material that *is actually transported in the liquid state*, irrespective of the DOT definitions for *liquid* or *liquid phase* logically can only be described as a liquid. To conclude that because a material does not meet the definition for liquid or liquid phase, *notwithstanding it is a liquid during its actual transportation*, and that indeed it *must* be described during transportation as a solid, is a contradiction in fact not supported or prescribed by anything in the regulations. One could conclude, perhaps, that a person offering or transporting such a material described as a solid probably should not (or could not) be cited for violation since the DOT definition for *liquid phase* probably would need to conclude with the phrase "unless it is offered for transportation in the liquid state and so remains during its transportation" or some such wording.

While not precisely the same issue, in a recent letter your staff wrote to DuPont (copy enclosed) about such a matter. In response to the question --

"Can DOT provide guidance on classifying materials as a liquid or solid when the materials are known to exhibit multiple melting points over a range that includes the 20°C threshold value?"

DOT's reply stated unambiguously that --

"The physical form of a material when packaged and loaded for transportation determines whether it is a solid or a liquid."

From the perspective of the material's actual state, the answer did not rely on a definitional technicality. In fact, it did not even reference this fact which undoubtedly was known to the DOT author. The material in our question is not only loaded in the liquid state in a cargo tank, it is transported to destination in its liquid form.

My letter would have gone unwritten had not another letter, apparently recently sent to you, been brought to our attention. The enclosed letter was forwarded to our client and contains the substance of an inquiry that apparently has been only recently sent to you. The difficulty with the enclosed letter is that it limits itself to a discussion of the meaning of the words in the

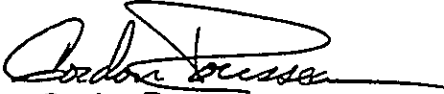
Edward Mazzullo
Office of Hazardous Materials Standards
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Thursday, September 18, 1997
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regulation and not the circumstances of the person attempting to apply these words. A critical missing element in the enclosed letter, in my opinion, is the fact that the question is being posed, *and the question will be related*, to a material that in fact is being transported to destination in its liquid state. We believe our letter clarifies an important issue if the question has been incompletely presented as the enclosure would indicate.

Without presuming to suggest your response to any other letter you may have received, we simply wish to confirm by our letter that if indeed a material is transported in the liquid state, it should be not only be handled as a liquid, it should be so described as well. We believe that to read the rules such that they would require a material transported in the liquid state to be described as a solid would result in a grossly misleading element of your "hazard communication" rules.

We appreciate your attention to this matter.

Sincerely,



Gordon Rousseau

cc: D. Billings, DOT

Enclosures

To follow up on our conversation of last week, I wanted to share with you the basis of our submission to the US Department of Transportation (DOT).

The definition of a liquid in 49 CFR, the DOT regulatory code, states, "Liquid means a material, other than an elevated temperature material, with a melting point or initial melting point of 20°C (68°F) or lower at a standard pressure of 101.3 kPa (14.7 psi). A viscous material for which a specific melting point cannot be determined must be subjected to the procedures specified in ASTM D 4359 'Standard Test Method for Determining Whether a Material is Liquid or Solid'."

The melting point of Di-tertiary-butylphenol has been determined to be 51.7°C (125°F) to 56.5°C (134°F) for 2,4 Di-tertiary-butylphenol and 36°C (96.8°F) to 37°C (98.6°F) for 2,6 Di-tertiary-butylphenol. Therefore, the material does not meet the regulatory definition of a liquid and must then be classified as a solid. The material is heated and offered for transportation at a temperature of 43.3°C (10°F) to 60°C (140°F) to facilitate greater efficiency in loading and unloading operations with a loss in transit up to 4°F per day, but does not meet the regulatory definition of an elevated temperature material since it is not heated to a temperature of 100°C or more in the liquid phase or 240°C in the solid phase.

We anticipate the DOT interpretation to reflect the above reasoning. Our consultant has advised us that he submitted the above, and they have initially agreed with us. A final review and decision is pending, but should be completed within the next two weeks. Once received, I'll send you a copy.

Best regards.

Jodi



U.S Department
of Transportation

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

Research and
Special Programs
Administration

MAY 30 1997

Mr. Thomas C. Reese
E.I. du Pont de Nemours and Company, Inc.
10th & Market Streets
Hazardous Materials Distribution
DuPont Sourcing/D-3062-3
Wilmington, DE 19898

Dear Mr. Reese:

This is in response to your letter regarding your material identified as BHMT amine blend (BAB). I apologize for the delay in responding and hope it has not caused any inconvenience.

Your questions have been paraphrased and answered as follows:

Q1. Is it acceptable to use one proper shipping description to describe all shipments of BAB regardless if some meet the definition for a liquid, and others meet the definition for a solid?

A1. The answer is no. It is not acceptable because solids must be identified as solids and liquids must be identified as liquids according to the definitions provided in § 171.8 of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) and § 172.101.

Q2. Which proper shipping name is appropriate to apply to shipments of BAB?

A2. As provided in § 173.22, it is the shipper's responsibility to classify properly a hazardous material. This office does not perform that function. If a material is not specifically listed by name in the Hazardous Materials Table (§ 172.101), then selection of a proper shipping name must be made from the general description entries corresponding to the specific hazard class, packing group, and subsidiary hazards of the material. However, based on the information you provided, it is the opinion of this office that the material should be described as Amines, liquid, corrosive, NOS (list 2 major components), 8, UN 2735, PG II.

Q3. Can DOT provide guidance on classifying materials as a liquid or solid when the materials are known to exhibit multiple melting points over a range that includes the 20°C threshold value?

A3. The physical form of a material when packaged and loaded for transportation determines whether it is either a solid or a liquid.

I hope this information is helpful. If you need additional assistance, do not hesitate to contact us.

Sincerely,

Diane LaVelle

for

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