



U.S. Department
of Transportation

**Research and
Special Programs
Administration**

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

SEP 19 2002

Mr. Ray Duzynski
3M Company
3M Center, Bldg. 225-5N-07
St. Paul, MN 55144-1000

Ref. No. 02-0125

Dear Mr. Duzynski:

This is in response to your inquiry dated April 3, 2002 regarding the selection of a proper shipping name. Specifically, you ask that if a material contains a material that does not contribute to the primary or subsidiary hazard class of the material, does it need to be included in the determination of the proper shipping name.

If a material, that in certain concentrations meets the definition of a hazardous material, is being shipped in a concentration that the mixture no longer meets the hazard class associated with the material, the material is not a hazardous material for purposes of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180). Section 172.101(c)(10)(i) states that a mixture or solution not identified specifically by name, comprised of a hazardous material identified in the Hazardous Materials Table (HMT) by technical name and non-hazardous material, shall be described using the proper shipping name of the hazardous material and the qualifying word "mixture" or solution, as appropriate. Therefore, a mixture comprised of a hazardous material identified by technical name in the HMT and a non-hazardous material that does not contribute to the primary or subsidiary hazard class of the material shall be described by the technical name of the hazardous material.

I hope this satisfies your inquiry.

Sincerely,

Edward T. Mazzullo
Director, Office of Hazardous
Materials Standards



020125

172.101(c)(10)(i)

Gale, John

From: rtduzynski@mmm.com
Sent: Wednesday, April 03, 2002 6:49 PM
To: john.gale@rspa.dot.gov
Subject: Proper Shipping Name/Technical Name Selection for Mixtures

Gale
§ 172.101(c)(10)
Classification
02-0125

John, I would like to confirm when a mixture or solution contains a hazardous material identified in the Hazardous Materials Table (HMT) by technical name (e.g., Chloroform) that does not contribute to hazards of the mixture or solution (e.g., Div 2.1- Flammable Gas), it need not be included in the determination of the proper shipping name and/or technical name. I have provided six gas mixture scenarios with some potential proper shipping name and technical name choices displayed for each example (my choice is shown in red) to illustrate my question and solicit your comments on acceptability.

Note: I have read a DOT comment in a Letter of Interpretation that states "The Hazardous Materials Regulations (HMR) do not limit a material to the selection of only one proper shipping name. The HMR state that for a material not specifically identified by name in the HMT that it must be described by the shipping name that "most appropriately describes" the material. In some cases, more than one shipping name could "most appropriately describe" a material and in those instances, a shipper has the discretion to decide what shipping name to use."

Example #1

50% - Dimethyl Ether, 2.1, UN1033
50% - Non-hazardous material

Mixture is a Flammable Gas (Div 2.1).

Potential Proper Shipping Name Choices:

Dimethyl Ether Mixture, 2.1, UN1033

Liquefied Gas, Flammable, N.O.S. (Contains Dimethyl Ether), 2.1, UN3161

Example #2

50% - Dimethyl Ether, 2.1, UN1033
49% - Non-hazardous material
1% - Chloroform, 6.1, UN1888, III

The mixture is a Flammable Gas (Div 2.1) and contains another hazardous component (different hazard class) that is specifically named in the HMT.

Potential Proper Shipping Name Choices:

Dimethyl Ether Mixture, 2.1, UN1033

Liquefied Gas, Flammable, N.O.S. (Contains Dimethyl Ether), 2.1, UN3161

Liquefied Gas, Flammable, N.O.S. (Chloroform and Dimethyl Ether), 2.1, UN3161

Note: I believe (Chloroform and Dimethyl Ether) would not be an acceptable technical name because Chloroform does not contribute to hazard of the mixture.

Example #3a

95% - Silicon Tetrafluoride Compressed, 2.3, UN1859, Toxic-Inhalation Hazard, Zone B, 8
5% - Carbon Dioxide, 2.2, UN1013

Mixture is a Toxic Gas (Div 2.3) with a Corrosive (8) subrisk and contains another hazardous component (different hazard class) that is specifically named in the HMT.

Potential Proper Shipping Name Choices:

Silicon Tetrafluoride Compressed Mixture, 2.3. UN1859, Toxic-Inhalation Hazard, Zone B, 8

Compressed Gas, Toxic, N.O.S. (Contains Silicon Tetrafluoride), 2.3, UN1955, Toxic-Inhalation Hazard, Zone B, 8

Compressed Gas, Toxic, N.O.S. (Carbon Dioxide and Silicon Tetrafluoride), 2.3, UN1955, Toxic-Inhalation Hazard, Zone B, 8

Note: I believe that Silicon Tetrafluoride Compressed Mixture (UN1859) appropriately describes this mixture; however, classification as UN1955 and inclusion of Carbon Dioxide (Div 2.2- Non-Flammable Gas) in the technical name would help identify the presence of the Carbon Dioxide which could contribute to the overall hazard of the mixture due to its pressurization effect.

Example #3b

50% - Dimethyl Ether, 2.1, UN1033
50% - Carbon Dioxide, 2.2, UN1013

Mixture is a Flammable Gas (Div 2.1).

Potential Proper Shipping Name Choices:

Dimethyl Ether Mixture, 2.1, UN1033

Liquefied Gas, Flammable, N.O.S. (Contains Dimethyl Ether), 2.1, UN3161

Liquefied Gas, Flammable, N.O.S. (Carbon Dioxide and Dimethyl Ether), 2.1, UN3161

Note: I believe that Diethyl Ether Mixture (UN1033) appropriately describes this mixture; however, classification as UN3161 and inclusion of Carbon Dioxide (Div 2.2- Non-Flammable Gas) in the technical name helps identifies the presence of the Carbon Dioxide which could contribute to the overall hazard of the mixture due to its pressurization effect.

Example #4

50% - Carbon Dioxide, 2.2, UN1013
30% - Non-hazardous material
20% - Acetone, 3, UN1090, II

The mixture is a flammable liquefied compressed gas (Div 2.1) due to the presence of the acetone (flammable liquid) being dispensed by a compressed

gas (Div 2.2) propellant.

Potential Proper Shipping Name Choices:

Liquefied Gas, Flammable, N.O.S. (Acetone and Carbon Dioxide), 2.1,
UN3161

Liquefied Gas, Flammable, N.O.S. (Contains Acetone), 2.1, UN3161

Note: I believe (Acetone and Carbon Dioxide) would be the best technical name for the mixture because including Carbon Dioxide in the technical name helps explain the proper shipping name selection that includes the word "Gas" even though it is not a flammable component or a liquefied gas.

Example #5

50% - Carbon Dioxide, 2.2, UN1013

30% - Non-hazardous material

10% - Acetone, 3, UN1090, II

10% - Heptane, 3, UN1206, II

The mixture is a flammable liquefied compressed gas (Div 2.1) due to the presence of the flammable liquids (Acetone and Heptane) being dispensed by a compressed gas (Div 2.2) propellant.

Potential Proper Shipping Name Choices:

Liquefied Gas, Flammable, N.O.S. (Acetone and Carbon Dioxide), 2.1,
UN3161

Liquefied Gas, Flammable, N.O.S. (Acetone and Heptane), 2.1, UN3161

Note: I believe (Acetone and Carbon Dioxide) would be the best technical name because including Carbon Dioxide in the technical name helps explain the proper shipping name selection that includes the word "Gas" even though it is not a flammable component or a liquefied gas.

Example #6

50% - Dimethyl Ether, 2.1, UN1033

40% - Non-hazardous material

10% - Acetone, 3, UN1090, II

The mixture is a liquefied compressed gas (Div 2.1) and contains another hazardous component (different hazard class) that is specifically named in the HMT. Since Acetone is flammable, it would contribute to the flammability of the gas mixture.

Potential Proper Shipping Name Choices:

Liquefied Gas, Flammable, N.O.S. (Acetone and Dimethyl Ether), 2.1,
UN3161

Dimethyl Ether Mixture, 2.1, UN1033

Liquefied Gas, Flammable, N.O.S. (Contains Dimethyl Ether), 2.1, UN3161

Note: I believe the example with a technical name of (Acetone and Dimethyl Ether) is the best choice because including Acetone (flammable liquid) in the technical name would identify a ingredient that contributes to the hazard (flammability) of the mixture even though the mixture would be

flammable without its presence due to the high percentage of Dimethyl Ether.

If you have any questions or need additional information, please contact me.

Thank you for your assistance in advance!

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