



U.S. Department
of Transportation

**Pipeline and
Hazardous Materials Safety
Administration**

JAN - 4 2007

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

Mr. Allan B. Currie, Jr.
Owner
Currie Industrial Services, LLC
12019 Pink Street
Brooklyn, MI 49230

Ref. No. 06-0248

Dear Mr. Currie:

This is in response to your October 13, 2006 letter regarding the hazard classification of "Biodiesel" (e.g., "Soybean Methyl Ester"), and "Crude Glycerin," commonly referred to as "Glycerol," under the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180). You also ask whether the registration requirements of the HMR are applicable to any person who offers for transportation or transports these products in commerce.

According to your letter, Biodiesel is produced through a chemical process (transesterification) where a feedstock, such as soybean oil, is reacted with an alcohol, such as methanol, in the presence of a catalyst. The alcohol is recovered for reuse, leaving behind two products: (1) fatty acid methyl esters of soybean oil consisting of the following single component methyl esters: C16:0(10%), C18:0(5%), C18:1(23%) C18:2(54%), C18:3(8%); and (2) Crude Glycerin. You state that the flash points for Biodiesel and Crude Glycerin are 321°F - 425 °F and 320 °F, respectively. You further state your review of several Material Safety Data Sheets (MSDS) for each material indicates that neither product contains a hazardous material as defined by the Occupational Safety and Health Administration (OSHA). You enclosed an MSDS for each material.

As required under § 173.22, a shipper is required to properly class and describe the hazardous material in accordance with Parts 172 and 173 of the HMR, and to determine that the packaging or container is an authorized packaging in accordance with Part 173. This Office does not perform this function. However, based on the information provided in your letter, your material does not appear to be subject to the HMR, including the registration requirements specified under § 107.601



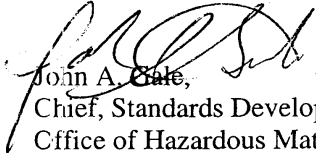
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For clarification, a "hazardous material" is defined in § 171.8 of the HMR, and is a substance or material that the Secretary of Transportation has determined is capable of posing an unreasonable risk to health, safety, and property when transported in commerce, has been designated as hazardous under § 5103 of Federal hazardous materials transportation law (49 U.S.C. 5103).

I hope this information is helpful.

Sincerely,

A handwritten signature in black ink, appearing to read "John A. Gale". The signature is stylized and written over the printed name.

John A. Gale,
Chief, Standards Development
Office of Hazardous Materials Standards

CURRIE INDUSTRIAL SERVICES, LLC
12019 Pink Street
Brooklyn, MI 49230

Foster
\$107.612
\$173.22.
Registration
06-0248

October 13, 2006

Mr. Edward T. Mazzullo
Director, Office of Hazardous Materials Standards
U.S. DOT/PHMSA (PHH-10)
400 7th Street S.W.
Washington, D.C. 20590-0001

**RE: DOT Hazardous Materials Registration
Biodiesel Production
49 CFR, Part 107 Applicability Request**

Dear Mr. Mazzullo:

We have recently been confronted with an issue related to transportation of biodiesel and crude glycerin in which U.S. DOT has no apparent nor established opinions. Therefore, I am herein requesting that U.S. DOT provide a written opinion based on the facts set forth below as to whether biodiesel and/or crude glycerin are regulated as defined hazardous materials.

Background

The production of biodiesel (e.g., soybean methyl ester) is made through a chemical process called transesterification whereby a feedstock (soybean oil) is reacted with an alcohol such as methanol in the presence of a catalyst. The alcohol is recovered for reuse leaving behind two products; fatty acid methyl esters (FAMES) of soybean oil consisting of the following single component methyl esters: C16:0(10%), C18:0(5%), C18:1(23%), C18:2(54%), C18:3(8%) and crude glycerin, which is a valuable byproduct used in the manufacture of soaps and other products.

Biodiesel refers to the pure fatty acid methyl ester fuel as opposed to a blend of biodiesel and petroleum diesel fuel, which are typically designated as "BXX", whereby the "XX" denotes the percentage of biodiesel contained in the blend (i.e., B20 is comprised of 20% biodiesel and 80% petroleum diesel).

Biodiesel (C.A.S. No.: 67784-80-9) is also referred as B100, Soy Methyl Ester, and Methyl Soyate. Crude Glycerin (C.A.S. 56-81-5) is commonly referred to as simply Glycerol. The review of several material safety data sheets for these products indicates that neither product contains a hazardous material as that term is defined by OSHA. Likewise, the material safety data sheets examined in our review did not define an established DOT shipping name or identification number for these products. The flash point of these materials are 321°-425°F and 320°F respectively.

49CFR, Part 107.601 Applicability

In attempting to resolve this issue, we have examined the registration and fee requirements of 49 CFR, Part 107.601, which apply to any person who offer the following materials for transportation, or transports these materials, in foreign, interstate or intrastate commerce:

- (1) A highway route-controlled quantity of a Class 7 (radioactive) material, as defined in § 173.403 of this chapter;
- (2) More than 25 kg (55 pounds) of a Division 1.1, 1.2, or 1.3 (explosive) material (see § 173.50 of this chapter) in a motor vehicle, rail car or freight container;
- (3) More than one L (1.06 quarts) per package of a material extremely toxic by inhalation (i.e., “material poisonous by inhalation,” as defined in § 171.8 of this chapter, that meets the criteria for “hazard zone A,” as specified in §§ 173.116(a) or 173.133(a) of this chapter);
- (4) A shipment of a quantity of hazardous materials in a bulk packaging (see § 171.8 of this chapter) having a capacity equal to or greater than 13,248 L (3,500 gallons) for liquids or gases or more than 13.24 cubic meters (468 cubic feet) for solids;
- (5) A shipment in other than a bulk packaging of 2,268 kg (5,000 pounds) gross weight or more of one class of hazardous materials for which placarding of a vehicle, rail car, or freight container is required for that class, under the provisions of subpart F of part 172 of this chapter; or
- (6) Except as provided in paragraph (b) of this section, a quantity of hazardous material that requires placarding, under provisions of subpart F of part 172 of this chapter.

With respect to the applicability criteria cited above, the term “**hazardous material**” is defined as:

a substance or material that the Secretary of Transportation has determined is capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and has designated as hazardous under section 5103 of Federal hazardous materials transportation law (49 U.S.C. 5103). The term includes hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table (see 49 CFR 172.101), and materials that meet the defining criteria for hazard classes and divisions in part 173 of subchapter C of this chapter (emphasis added).

The implementing rules also provide clarification to the underlined terms cited above. In that regard, the term “**hazardous substance**” is defined as *a material, including its mixtures and solutions, that:*

- (1) Is listed in the Appendix A to § 172.101 of this subchapter;
- (2) Is in a quantity, in one package, which equals or exceeds the reportable quantity (RQ) listed in the Appendix A to § 172.101 of this subchapter; and
- (3) When in a mixture or solution—
 - (i) For radionuclides, conforms to paragraph 7 of the Appendix A to § 172.101.
 - (ii) For other than radionuclides, is in a concentration by weight which equals or exceeds the concentration corresponding to the RQ of the material, as shown in the following table:

RQ pounds (kilograms)	Concentration by weight	
	Percent	PPM
5000 (2270)	10	100,000

1000 (454)	2	20,000
100 (45.4)	0.2	2,000
10 (4.54)	0.02	200
1 (0.454)	0.002	20

The term does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance in Appendix A to § 172.101 of this subchapter, and the term does not include natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas).

Appendix A to § 172.101 lists materials and their corresponding reportable quantities (RQ's) that are listed or designated as "hazardous substances" under section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. 9601(14) (CERCLA; 42 U.S.C. 9601 et seq). Appendix A is divided into two tables entitled "TABLE 1-HAZARDOUS SUBSTANCES OTHER THAN RADIONUCLIDES" and "TABLE 2-RADIONUCLIDES." A material listed in Appendix A is regulated as a hazardous material and a hazardous substance under this subchapter if it meets the definition of a hazardous substance in § 171.8 of this subchapter.

Hazardous waste, is defined as any material that is subject to the Hazardous Waste Manifest Requirements of the U.S. Environmental Protection Agency specified in 40 CFR part 262.

Appendix B to § 172.101 lists potential **marine pollutants** as defined in § 171.8.

Elevated temperature material, is defined as 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); or (2) is in a liquid phase with a flash point at or above 37.8 °C (100°F) that is intentionally heated and offered for transportation or transported at or above its flash point; or (3) is in a solid phase and at a temperature at or above 240°C (464°F).

49 CFR, Part 172 contains the DOT **hazardous materials table** referred to in the definition.

The following table, taken from Part 173.2, lists the **hazardous materials classes** and index to hazard class, which contain the definitions for classifying a material as a regulated "hazardous material".

Class No.	Division No. (if any)	Name of Class or Division	49 CFR Reference
None		Forbidden materials	173.21
None		Forbidden explosives	173.54
1	1.1	Explosives (with a mass explosion hazard)	173.50
1	1.2	Explosives (with a projection hazard)	173.50
1	1.3	Explosives (with predominately a fire hazard)	173.50
1	1.4	Explosives (with no significant blast hazard)	173.50
1	1.5	Very insensitive explosives; blasting agents	173.50
1	1.6	Extremely insensitive detonating substances	173.50
2	2.1	Flammable gas	173.115

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Class No.	Division No. (if any)	Name of Class or Division	49 CFR Reference
2	2.2	Non-flammable compressed gas	173.115
2	2.3	Poisonous gas	173.115
3		Flammable and combustible liquid	173.120
4	4.1	Flammable solid	173.124
4	4.2	Spontaneously combustible material	173.124
4	4.3	Dangerous when wet material	173.124
5	5.1	Oxidizer	173.127
5	5.2	Organic peroxide	173.128
6	6.1	Poisonous materials	173.132
6	6.2	Infectious substance (Etiologic agent)	173.134
7		Radioactive material	173.403
8		Corrosive material	173.136
9		Miscellaneous hazardous material	173.140
None		Other regulated material: ORM-D	173.144

Regulatory Discussion and Request for Opinion

Because of the onerous nature of the regulations, we have prepared the attached table that summarizes our preliminary opinion regarding the applicability of 49 CFR, Part 107 to the offering of biodiesel and crude glycerin for transportation. Based upon the facts presented herein, and your knowledge of the subject issue, we request the Department to issue a written opinion in response to the question as to whether the offering of biodiesel and crude glycerin for transportation triggers the registration and fee requirements set forth in 49 CFR, Part 107, or any other part of the Hazardous Materials Program.

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

Sincerely,



Allan (Dusty) B. Currie Jr.
Owner
(517) 740-2991

Attachments:

- Material Safety Data Sheet for Biodiesel (Biodiesel Industries, Inc.)
- Material Safety Data Sheet for Crude Glycerin (Biodiesel Industries, Inc.)

Regulatory Reference	Biodiesel	Crude Glycerin	Comment
Is a highway route-controlled quantity of a Class 7 (radioactive) material, as defined in § 173.403.	No	No	Biodiesel and Crude Glycerin are not defined as radioactive materials.
Is more than 25 kg (55 pounds) of a Division 1.1, 1.2, or 1.3 (explosive) material (§ 173.50)	No	No	Biodiesel and Crude Glycerin are not defined as explosive materials
Is more than one L (1.06 quarts) per package of a material extremely toxic by inhalation (i.e., "material poisonous by inhalation," as defined in § 171.8, that meets the criteria for "hazard zone A," as specified in §§ 173.116(a) or 173.133(a)	No	No	Available data does not indicate that biodiesel or crude glycerin would be extremely toxic by inhalation.
Is a shipment of a quantity of hazardous materials in a bulk packaging (see § 171.8.) having a capacity equal to or greater than 13,248 L (3,500 gallons) for liquids or gases or more than 13.24 cubic meters (468 cubic feet) for solids;	not a hazardous material	not a hazardous material	While biodiesel and crude glycerin are normally offered for shipment by truck and rail in cargo containers with a capacity greater than 3,500 gallons, neither material appears to meet the definition of a hazardous material.
Is a shipment in other than a bulk packaging of 2,268 kg (5,000 pounds) gross weight or more of one class of hazardous materials for which placarding of a vehicle, rail car, or freight container is required for that class, under the provisions of subpart F of part 172.	not a hazardous material	not a hazardous material	While biodiesel and crude glycerin are normally offered for shipment by truck and rail in cargo containers with a capacity greater than 3,500 gallons, neither material appears to meet the definition of a hazardous material.
Except as provided in paragraph (b) of this section, is a quantity of hazardous material that requires placarding, under provisions of subpart F of part 172.	not a hazardous material	not a hazardous material	Biodiesel and crude glycerin do not appear to meet the definition of a hazardous material.
Meets the definition of a hazardous material defined below.			
<ul style="list-style-type: none"> ➤ Is a hazardous waste. ➤ Is a marine pollutant listed in Appendix B. ➤ Is listed in the Hazardous Materials Table. ➤ Is a hazardous substance listed in Appendix A. ➤ Is an elevated temperature material. ➤ Meets the defining criteria of a hazard class and division in Part 173 of subchapter C. 	<p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p>	<p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p>	<p>Biodiesel and crude glycerin are <u>not</u> wastes.</p> <p>Not listed as a marine pollutant.</p> <p>Not listed in the Hazardous Materials Table.</p> <p>Not list in Appendix A.</p> <p>Biodiesel and crude glycerin are loaded at 120°F.</p>
Class 3 Combustible Liquid that has a flash point above 141° F and below 200° F.	No (321°F)	No (320°F)	With respect to Class 3, biodiesel and crude glycerin have flash points of 321°F and 320°F.
Class 6 Poisonous Material with an LD50 for acute oral toxicity of not more than 500 mg/kg.	No	No	Biodiesel and crude glycerin have published oral toxicity values of 17,400 and 12,600 mg/kg.