

Miami County Local Emergency Planning Committee

2019 Commodity Flow Study Of Hazardous Materials



Miami County, Ohio

Introduction

This study is a step to gain an understanding of the chemicals and the frequency of hazardous materials being shipped through Miami County by roadway and rail. The last survey for this information was in 2009. Both roadway and railroads provide an efficient means of transporting heavy goods and bulk loads, including hazardous materials.

This study was financed by a state grant, Hazardous Material Emergency Preparedness (HMEP) Grant, and the Miami County Local Emergency Planning Committee (MCLEPC). The data was gathered by members of the Miami County Fire and Emergency Services Chief's Association (MCFESCA). Several locations throughout the county were designated to gather the data from the placards from rail cars, interstate highways and state routes.

This study is part of the MCLEPC program to monitor hazardous materials shipments in the county. The results of this study will be distributed to local emergency response entities and will be used to conduct hazard analysis and risk assessment. Area fire, law enforcement and medical responders should be made aware of all the various types of hazardous material shipments of railroads and highways.

Method of Survey

The hazardous material survey was conducted during the months of May through July, 2019. An agreement was made with the MCFESCA to gather the information. The MCFESCA agreed to provide up to, but not to exceed 240 hours for gathering and compiling the data.

There is one railroad line (CSX) running through Miami County. The rail location to observe rail cars for this survey is below:

- Herrlinger Park in Troy

The state routes for truck observation are below:

- State route 571 and Hyatt Street in Tipp City
- State route 36 near I-75 in Piqua
- State route 36 at Sunset Drive in Piqua
- State routes 48 and 36 in Covington
- State route 41 near I-75 in Troy

The interstate highway observations were made at the ODOT north and south rest areas in Piqua, Ohio.

A survey team was stationed at the survey site and recorded the following information:

- Names of Team Members
- Cell phone numbers of Contact Person
- Date, Time Start, Time Ended
- Location
- Weather Conditions
- Direction of Travel
- Placard Number and/or Description
- Rail Cars or Trucks

- Total Number of Rail Cars or Trucks

When a placard number was not able to be read completely, all the information that could be observed was gathered. This could include color of the placard and any other pertinent information the team could obtain. When the total number could not be obtained, an asterick (*) will be placed in the tables that follow.

Results by Rail Car and Semi Trucks

A total of 189 placarded rail cars were observed on trains passing through the county. The data was broken down per train, location, and time. A total of 394 placarded trucks on interstate and state roads were observed on all monitored roadways passing through the county. The results follow in table form to show the results of each time and location data was gathered, as well as a table that depicts the total number and types of hazardous substances passing through the county.

The placard most observed during the entire survey was petroleum gases (1075). From the survey done in 2009 the chemical most found was gasoline (1203).

RAILROAD SURVEY RESULTS



2019 MIAMI COUNTY COMMODITY FLOW STUDY OF HAZARDOUS MATERIALS

2019 Miami County LEPC Commodity Flow Study
Rail by Quantity

UN #	Type	Rail					Totals
	Location	Herrlinger Park					
	Date	4/23/2019	6/13/2019	6/19/2019	6/20/2019	6/21/2019	
	Time	0800-1200	1500-1900	1500-1900	1500-1900	1500-1900	
Chemical Name							
1075	Petroleum gases	47	4	11	1	12	75
1093	Acrylonitrile, stabilized	13		9			22
3257	Elevated temperature liquid, n.o.s., =>100 °C and below its flashpoint (including molten metals, molten salts, etc.)			5	7	4	16
1230	Methanol		1	1	5	4	11
3082	Environmentally hazardous substance, liquid, n.o.s.	2	5	2			9
1114	Benzene	1		6			7
1830	Sulfuric acid with more than 51 percent acid	6					6
1993	Flammable liquids, (Diesel) n.o.s.	1		5			6
1824	Sodium hydroxide solution	4		1			5
1298	Trimethylchlorosilane			3	1		4
1791	Hypochlorite solutions		4				4
2312	Phenol, molten	1	1	2			4
1219	Isopropanol or Isopropyl alcohol	3					3
1250	Methyltrichlorosilane			1	2		3
1242	Methyldichlorosilane			2			2
1265	Pentanes		2				2
1789	Hydrochloric acid				2		2
1032	Dimethylamine, anhydrous		1				1
1307	Xylenes	1					1
1477	Cesium nitrate or Caesium nitrate	1					1
1805	Phosphoric acid	1					1
2055	Styrene monomer, inhibited	1					1
2448	Sulfur, molten	1					1
2582	Ferric chloride, solution				1		1
3065	Alcoholic beverages			1			1
1005	Ammonia, anhydrous						0
1073	Oxygen, refrigerated liquid						0
1123	Butyl acetates						0
1170	Ethanol or Ethyl alcohol or Ethanol solutions or Ethyl alcohol solutions						0
1202	Gas oil Heating oil, light						0
1203	Gasoline						0
1247	Methyl methacrylate monomer, stabilized						0
1263	Paint related material including paint thinning, drying, removing, or reducing compound						0
1266	Perfumery products with flammable solvents						0
1268	Petroleum distillates, n.o.s or Petroleum products, n.o.s.						0
1281	Propyl formates						0
1294	Toluene						0
1451	Cesium nitrate or Caesium nitrate						0
1663	Nitrophenols (o-; m-; p-)						0
1768	Difluorophosphoric acid, anhydrous						0
1814	Potassium hydroxide, solution						0
1719	Caustic alkali liquid, n.o.s.						0
1866	Resin solution, flammable						0
1886	Benzylidene chloride						0
1903	Disinfectants, liquid, corrosive, n.o.s.						0
1951	Argon, refrigerated liquid (cryogenic liquid)						0
1977	Nitrogen, refrigerated liquid cryogenic liquid						0
1403	Calcium cyanamide >0.1 percent of calcium carbide						0
1987	Alcohols, (Ethanol), n.o.s.						0

1999	Tars, liquid including road asphalt and oils, bitumen and cut backs					0
2014	Hydrogen peroxide, aqueous solutions > 20 percent but < 60 percent hydrogen peroxide (stabilized as necessary)					0
2031	Nitric acid other than red fuming					0
1863	Fuel, aviation, turbine engine					0
2076	Cresols					0
2079	Diethylenetriamine					0
2187	Carbon dioxide, refrigerated liquid					0
2209	Formaldehyde, solutions, with not less than 25 percent formaldehyde					0
2426	Ammonium nitrate, liquid (hot concentrated solution)					0
2531	Methacrylic acid, inhibited					0
2672	Ammonia solution, relative density between 0.880 and 0.957 at 15 °C in water, >10 percent but <35 percent ammonia					0
2734	Amines, liquid, corrosive, flammable, n.o.s. or Polyamines, liquid, corrosive, flammable, n.o.s.					0
2787	Organotin pesticides, liquid, flammable, toxic, flashpoint less than 23 °C					0
2922	Corrosive liquids, toxic, n.o.s.					0
2924	Flammable liquid, corrosive, n.o.s.					0
3002	Phenoxy pesticides, liquid, toxic, flammable					0
3016	Bipyridilium pesticides, liquid, toxic					0
3077	Environmentally hazardous substance, solid, n.o.s. (not including waste)					0
3092	1-Methoxy-2-propanol					0
3161	Liquefied gas, flammable, n.o.s.					0
3163	Liquefied gas, n.o.s.					0
3225	Self-reactive liquid type D					0
3256	Elevated temperature liquid, flammable, n.o.s., with flashpoint >60 °C, at or above its flashpoint					0
3264	Corrosive liquid, acidic, inorganic, n.o.s.					0
3265	Corrosive liquid, acidic, organic, n.o.s.					0
3266	Corrosive liquid, basic, inorganic, n.o.s.					0
3375	Nitriles, toxic, flammable, n.o.s.					0
3475	Ethanol and gasoline mixture or ethanol and motor spirit mixture or ethanol and petrol mixture, with >10% ethanol					0
3500	Chemical under Pressure, N.O.S.					0
	Flamm/Danger					0
	Corrosive					0
	Hot Molten Sulfur					0
	Explosive					0
	Flamm Gas					0
	Non Flamm Gas					0
	Class 9					0

2019 Miami County LEPC Commodity Flow Study

Rail by United Nation Number

UN #	Chemical Name	Rail					Totals
		Herringer Park					
		4/23/2019	6/13/2019	6/19/2019	6/20/2019	6/21/2019	
		0800-1200	1500-1900	1500-1900	1500-1900	1500-1900	
1005	Ammonia, anhydrous						0
1032	Dimethylamine, anhydrous		1				1
1073	Oxygen, refrigerated liquid						0
1075	Petroleum gases	47	4	11	1	12	75
1093	Acrylonitrile, stabilized	13		9			22
1114	Benzene	1		6			7
1123	Butyl acetates						0
1170	Ethanol or Ethyl alcohol or Ethanol solutions or Ethyl alcohol solutions						0
1202	Gas oil						0
1203	Heating oil, light						0
1203	Gasoline						0
1219	Isopropanol or Isopropyl alcohol	3					3
1230	Methanol		1	1	5	4	11
1242	Methyldichlorosilane			2			2
1247	Methyl methacrylate monomer, stabilized						0
1250	Methyltrichlorosilane			1	2		3
1263	Paint related material including paint thinning, drying, removing, or reducing compound						0
1265	Pentanes		2				2
1266	Perfumery products with flammable solvents						0
1268	Petroleum distillates, n.o.s or Petroleum products, n.o.s.						0
1281	Propyl formates						0
1294	Toluene						0
1298	Trimethylchlorosilane			3	1		4
1307	Xylenes	1					1
1403	Calcium cyanamide >0.1 percent of calcium carbide						0
1451	Cesium nitrate or Caesium nitrate						0
1477	Cesium nitrate or Caesium nitrate	1					1
1663	Nitrophenols (o-; m-; p-)						0
1719	Caustic alkali liquid, n.o.s.						0
1768	Diffuorophosphoric acid, anhydrous						0
1789	Hydrochloric acid				2		2
1791	Hypochlorite solutions		4				4
1805	Phosphoric acid	1					1
1814	Potassium hydroxide, solution						0
1824	Sodium hydroxide solution	4		1			5
1830	Sulfuric acid with more than 51 percent acid	6					6
1863	Fuel, aviation, turbine engine						0
1866	Resin solution, flammable						0
1886	Benzylidene chloride						0
1903	Disinfectants, liquid, corrosive, n.o.s.						0
1951	Argon, refrigerated liquid (cryogenic liquid)						0
1977	Nitrogen, refrigerated liquid cryogenic liquid						0
1987	Alcohols, (Ethanol), n.o.s.						0
1993	Flammable liquids, (Diesel) n.o.s.	1		5			6
1999	Tars, liquid including road asphalt and oils, bitumen and cut backs						0
2014	Hydrogen peroxide, aqueous solutions > 20 percent but < 60 percent hydrogen peroxide (stabilized as necessary)						0
2031	Nitric acid other than red fuming						0
2055	Styrene monomer, inhibited	1					1
2076	Cresols						0
2079	Diethylenetriamine						0
2187	Carbon dioxide, refrigerated liquid						0
2209	Formaldehyde, solutions, with not less than 25 percent formaldehyde						0
2312	Phenol, molten	1	1	2			4
2426	Ammonium nitrate, liquid (hot concentrated solution)						0
2448	Sulfur, molten	1					1
2531	Methacrylic acid, inhibited						0
2582	Ferric chloride, solution				1		1
2672	Ammonia solution, relative density between 0.880 and 0.957 at 15 °C in water, >10 percent but <35 percent ammonia						0
2734	Amines, liquid, corrosive, flammable, n.o.s. or Polyamines, liquid, corrosive, flammable, n.o.s.						0
2787	Organotin pesticides, liquid, flammable, toxic, flashpoint less than 23 °C						0

2922	Corrosive liquids, toxic, n.o.s.						0
2924	Flammable liquid, corrosive, n.o.s.						0
3002	Phenoxy pesticides, liquid, toxic, flammable						0
3016	Bipyridilium pesticides, liquid, toxic						0
3065	Alcoholic beverages			1			1
3077	Environmentally hazardous substance, solid, n.o.s. (not including waste)						0
3082	Environmentally hazardous substance, liquid, n.o.s.	2	5	2			9
3092	1-Methoxy-2-propanol						0
3161	Liquefied gas, flammable, n.o.s.						0
3163	Liquefied gas, n.o.s.						0
3225	Self-reactive liquid type D						0
3256	Elevated temperature liquid, flammable, n.o.s., with flashpoint >60 °C, at or above its flashpoint						0
3257	Elevated temperature liquid, n.o.s., =>100 °C and below its flashpoint (including molten metals, molten salts, etc.)			5	7	4	16
3264	Corrosive liquid, acidic, inorganic, n.o.s.						0
3265	Corrosive liquid, acidic, organic, n.o.s.						0
3266	Corrosive liquid, basic, inorganic, n.o.s.						0
3375	Nitriles, toxic, flammable, n.o.s.						0
3475	Ethanol and gasoline mixture or ethanol and motor spirit mixture or ethanol and petrol mixture, with >10% ethanol						0
3500	Chemical under Pressure, N.O.S.						0
	Flamm/Danger						0
	Corrosive						0
	Hot Molten Sulfur						0
	Explosive						0
	Flamm Gas						0
	Non Flamm Gas						0
	Class 9						0

2019 Miami County LEPC Commodity Flow Study

Rail by Chemical Name (Alphabetically)

UN #	Chemical Name	Rail					Totals	
		Herrlinger Park						
		Date	4/23/2019	6/13/2019	6/19/2019	6/20/2019		6/21/2019
		Time	0800-1200	1500-1900	1500-1900	1500-1900		1500-1900
1005	1-Methoxy-2-propanol						0	
1032	Acrylonitrile, stabilized	13		9			22	
1073	Alcoholic beverages			1			1	
1075	Alcohols, (Ethanol), n.o.s.						0	
1093	Amines, liquid, corrosive, flammable, n.o.s. or Polyamines, liquid, corrosive, flammable, n.o.s.						0	
1114	Ammonia solution, relative density between 0.880 and 0.957 at 15 °C in water, >10 percent but <35 percent ammonia						0	
1123	Ammonia, anhydrous						0	
1170	Ammonium nitrate, liquid (hot concentrated solution)						0	
1202	Argon, refrigerated liquid (cryogenic liquid)						0	
1203	Benzene	1		6			7	
1219	Benzylidene chloride						0	
1230	Bipyridilium pesticides, liquid, toxic						0	
1242	Butyl acetates						0	
1403	Calcium cyanamide >0.1 percent of calcium carbide						0	
1247	Carbon dioxide, refrigerated liquid						0	
1719	Caustic alkali liquid, n.o.s.						0	
1250	Cesium nitrate or Caesium nitrate						0	
1263	Cesium nitrate or Caesium nitrate	1					1	
1265	Chemical under Pressure, N.O.S.						0	
1266	Corrosive liquid, acidic, inorganic, n.o.s.						0	
1268	Corrosive liquid, acidic, organic, n.o.s.						0	
1281	Corrosive liquid, basic, inorganic, n.o.s.						0	
1294	Corrosive liquids, toxic, n.o.s.						0	
1298	Cresols						0	
1307	Diethylenetriamine						0	
1451	Difluorophosphoric acid, anhydrous						0	
1477	Dimethylamine, anhydrous		1				1	
1663	Disinfectants, liquid, corrosive, n.o.s.						0	
1768	Elevated temperature liquid, flammable, n.o.s., with flashpoint >60 °C, at or above its flashpoint						0	
1789	Elevated temperature liquid, n.o.s., =>100 °C and below its flashpoint (including molten metals, molten salts, etc.)			5	7	4	16	
1791	Environmentally hazardous substance, liquid, n.o.s.	2	5	2			9	
1805	Environmentally hazardous substance, solid, n.o.s. (not including waste)						0	
1814	Ethanol or Ethyl alcohol or Ethanol solutions or Ethyl alcohol solutions						0	
1824	Ethanol and gasoline mixture or ethanol and motor spirit mixture or ethanol and petrol mixture, with >10% ethanol						0	
1830	Ferric chloride, solution				1		1	
1866	Flammable liquids, (Diesel) n.o.s.	1		5			6	
1886	Flammable liquid, corrosive, n.o.s.						0	

1903	Formaldehyde, solutions, with not less than 25 percent formaldehyde						0
1863	Fuel, aviation, turbine engine						0
1951	Gas oil Heating oil, light						0
1977	Gasoline						0
1987	Hydrochloric acid				2		2
1993	Hydrogen peroxide, aqueous solutions > 20 percent but < 60 percent hydrogen peroxide (stabilized as necessary)						0
1999	Hypochlorite solutions		4				4
2014	Isopropanol or Isopropyl alcohol	3					3
2031	Liquefied gas, flammable, n.o.s.						0
2055	Liquefied gas, n.o.s.						0
2076	Methacrylic acid, inhibited						0
2079	Methanol		1	1	5	4	11
2187	Methyl methacrylate monomer, stabilized						0
2209	Methyldichlorosilane			2			2
2312	Methyltrichlorosilane			1	2		3
2426	Nitric acid other than red fuming						0
2448	Nitriles, toxic, flammable, n.o.s.						0
2531	Nitrogen, refrigerated liquid cryogenic liquid						0
2582	Nitrophenols (o-; m-; p-;)						0
2672	Organotin pesticides, liquid, flammable, toxic, flashpoint less than 23 °C						0
2734	Oxygen, refrigerated liquid						0
2787	Paint related material including paint thinning, drying, removing, or reducing compound						0
2922	Pentanes		2				2
2924	Perfumery products with flammable solvents						0
3002	Petroleum distillates, n.o.s or Petroleum products, n.o.s.						0
3016	Petroleum gases	47	4	11	1	12	75
3065	Phenol, molten	1	1	2			4
3077	Phenoxy pesticides, liquid, toxic, flammable						0
3082	Phosphoric acid	1					1
3092	Potassium hydroxide, solution						0
3161	Propyl formates						0
3163	Resin solution, flammable						0
3225	Self-reactive liquid type D						0
3256	Sodium hydroxide solution	4		1			5
3257	Styrene monomer, inhibited	1					1
3264	Sulfur, molten	1					1
3265	Sulfuric acid with more than 51 percent acid	6					6
3266	Tars, liquid including road asphalt and oils, bitumen and cut backs						0
3375	Toluene						0
3475	Trimethylchlorosilane			3	1		4
3500	Xylenes	1					1
	Flamm/Danger						0
	Corrosive						0
	Hot Molten Sulfur						0
	Explosive						0
	Flamm Gas						0
	Non Flamm Gas						0
	Class 9						0

TRUCK TRAFFIC SURVEY RESULTS

-INTERSTATE-



2019 MIAMI COUNTY
COMMODITY FLOW STUDY
OF
HAZARDOUS MATERIALS

**2019 Miami County LEPC Commodity Flow Study
Sorted by Quantity at Location**

UN #	Type	Interstate Highway											Totals
		Location	SB I-75 @ Rest Area	NB I-75 @ Rest Area	NB I-75 @ Rest Area	NB I-75 @ Rest Area	SB I-75 @ Rest Area	NB I-75 @ Rest Area	NB I-75 @ Rest Area	SB I-75 @ Rest Area	SB I-75 @ Rest Area	NB I-75 @ Rest Area	
Date		5/7/2019	5/7/2019	5/16/2019	5/30/2019	6/5/2019	6/13/2019	6/28/2019	7/2/2019	7/3/2019	7/10/2019	7/10/2019	
Time		0745-1215	1200-1600	1500-1900	1500-1900	1445-1915	1500-1900	1600-1900	1245-1715	1230-1700	1400-1730	1245-1715	
UN #	Chemical Name												
1993	Flammable liquids, (Diesel) n.o.s.	6	13		4	1	6		1	1	7	1	40
1203	Gasoline		6		7	1	7		4	7	2	2	36
1075	Petroleum gases	9	2		2	1			1	6	2	1	27
	Flamm/Danger	5	3	4			3			3			20
2187	Carbon dioxide, refrigerated liquid	1	1		1		3		4	1			13
1987	Alcohols, (Ethanol), n.o.s.		1			1	2	2	2	2		2	12
1824	Sodium hydroxide solution		1			1	1			4	1	3	11
1263	Paint related material including paint thinning, drying, removing, or reducing compound	3			4	1	1		1				10
3257	Elevated temperature liquid, n.o.s., =>100 °C and below its flashpoint (including molten metals,	2	1			2			1		1	3	10
	Corrosive	1	4	1					4			1	11
1830	Sulfuric acid with more than 51 percent acid		2		1		1	2		3			9
1268	Petroleum distillates, n.o.s or Petroleum products,	3	2		1		1	1					8
1951	Argon, refrigerated liquid (cryogenic liquid)	2				1			2			3	8
1977	Nitrogen, refrigerated liquid cryogenic liquid	1			2	1	1		2			1	8
3082	Environmentally hazardous substance, liquid, n.o.s.	2	2					2	1				8
1005	Ammonia, anhydrous	1			1		3		1		1		7
2031	Nitric acid other than red fuming		1				2		1	1		1	6
2209	Formaldehyde, solutions, with not less than 25 percent formaldehyde					3			1	1		1	6
3065	Alcoholic beverages		1			2	1					1	5
1265	Pentanes				4								4
1791	Hypochlorite solutions					1					1	2	4
2055	Styrene monomer, inhibited								1			3	4
3256	Elevated temperature liquid, flammable, n.o.s., with flashpoint >60 °C, at or above its flashpoint	2										2	4
1093	Acrylonitrile, stabilized						1	1				1	3
1170	Ethanol or Ethyl alcohol or Ethanol solutions or Ethyl alcohol solutions					2			1				3
1202	Gas oil	3											3
1294	Heating oil, light						1		1				3
1294	Toluene	1					1		1				3
2672	Ammonia solution, relative density between 0.880 and 0.957 at 15 °C in water, >10 percent but <35 percent ammonia				2		1						3
3265	Corrosive liquid, acidic, organic, n.o.s.					1				1		1	3
	Non Flamm Gas		1						2				3
1999	Tars, liquid including road asphalt and oils, bitumen and cut backs							2					2
2448	Sulfur, molten	2											2
3077	Environmentally hazardous substance, solid, n.o.s. (not including waste)		1					1					2
1719	Caustic alkali liquid, n.o.s.			1									1
3264	Corrosive liquid, acidic, inorganic, n.o.s.		1					1					2
3266	Corrosive liquid, basic, inorganic, n.o.s.	1						1					2
3375	Nitriles, toxic, flammable, n.o.s.					1						1	2
	Flamm Gas								1			1	2
1073	Oxygen, refrigerated liquid											1	1
1123	Butyl acetates							1					1
1230	Methanol										1		1
1863	Fuel, aviation, turbine engine			1									1
1247	Methyl methacrylate monomer, stabilized								1				1
1266	Perfumery products with flammable solvents								1				1
1281	Propyl formates							1					1
1403	Calcium cyanamide >0.1 percent of calcium carbide			1									1
1451	Cesium nitrate or Caesium nitrate	1											1
1663	Nitrophenols (o-; m-; p-)					1							1
1768	Difluorophosphoric acid, anhydrous	1											1
1789	Hydrochloric acid										1		1
1805	Phosphoric acid		1										1
1814	Potassium hydroxide, solution							1					1
1866	Resin solution, flammable								1				1
1886	Benzylidene chloride									1			1
1903	Disinfectants, liquid, corrosive, n.o.s.			1					1				2
2014	Hydrogen peroxide, aqueous solutions > 20 percent but < 60 percent hydrogen peroxide (stabilized as					1							1

2187	Carbon dioxide, refrigerated liquid	1	1	1		3		4	1		2	13
2209	Formaldehyde, solutions, with not less than 25 percent formaldehyde					3		1	1		1	6
2312	Phenol, molten											0
2426	Ammonium nitrate, liquid (hot concentrated solution)	1										1
2448	Sulfur, molten	2										2
2531	Methacrylic acid, inhibited										1	1
2582	Ferric chloride, solution											0
2672	Ammonia solution, relative density between 0.880 and 0.957 at 15 °C in water, >10 percent but <35 percent			2		1						3
2734	Amines, liquid, corrosive, flammable, n.o.s. or Polyamines, liquid, corrosive, flammable, n.o.s.										1	1
2787	Organotin pesticides, liquid, flammable, toxic, flashpoint less						1					1
2922	Corrosive liquids, toxic, n.o.s.							1				1
2924	Flammable liquid, corrosive, n.o.s.						1					1
3002	Phenoxy pesticides, liquid, toxic, flammable							1				1
3016	Bipyridilium pesticides, liquid, toxic	1										1
3065	Alcoholic beverages		1		2	1					1	5
3077	Environmentally hazardous substance, solid, n.o.s. (not including environmentally hazardous		1			1						2
3082	Environmentally hazardous substance, liquid, n.o.s.	2	2				2	1			1	8
3092	1-Methoxy-2-propanol									1		1
3161	Liquefied gas, flammable, n.o.s.										1	1
3163	Liquefied gas, n.o.s.							1				1
3225	Self-reactive liquid type D	1										1
3256	Elevated temperature liquid, flammable, n.o.s., with flashpoint >60 °C, at or above its flashpoint	2									2	4
3257	Elevated temperature liquid, n.o.s., =>100 °C and below its flashpoint (including molten metals, molten salts, etc.)	2	1		2			1		1	3	10
3264	Corrosive liquid, acidic, inorganic,		1			1						2
3265	Corrosive liquid, acidic, organic,				1				1		1	3
3266	Corrosive liquid, basic, inorganic,	1				1						2
3375	Nitriles, toxic, flammable, n.o.s.				1						1	2
3475	Ethanol and gasoline mixture or ethanol and motor spirit mixture or ethanol and petrol mixture, with											0
3500	Chemical under Pressure, N.O.S.			1	1							2
	Flamm/Danger	5	3	4		3		3			2	20
	Corrosive	1	4	1				4			1	11
	Hot Molten Sulfur		1									1
	Explosive											0
	Flamm Gas							1			1	2
	Non Flamm Gas		1					2				3
	Class 9							1				1

**2019 Miami County LEPC Commodity Flow Study
Interstate by Chemical Name (alphabetically)**

UN #	Type Location Date Time Chemical Name	Interstate Highway										Totals	
		SB I-75 @ Rest Area	NB I-75 @ Rest Area	NB I-75 @ Rest Area	NB I-75 @ Rest Area	SB I-75 @ Rest Area	NB I-75 @ Rest Area	NB I-75 @ Rest Area	SB I-75 @ Rest Area	SB I-75 @ Rest Area	NB I-75 @ Rest Area		SB I-75 @ Rest Area
		5/7/2019	5/7/2019	5/16/2019	5/30/2019	6/5/2019	6/13/2019	6/28/2019	7/2/2019	7/3/2019	7/10/2019		7/10/2019
		0745-1215	1200-1600	1500-1900	1500-1900	1445-1915	1500-1900	1600-1900	1245-1715	1230-1700	1400-1730		1245-1715
3092	1-Methoxy-2-propanol									1		1	
1093	Acrylonitrile, stabilized						1	1				1	3
3065	Alcoholic beverages		1			2	1					1	5
1987	Alcohols, (Ethanol), n.o.s.		1			1	2	2	2	2		2	12
2734	Amines, liquid, corrosive, flammable, n.o.s. or Polyamines, liquid, corrosive, flammable, n.o.s.											1	1
2672	Ammonia solution, relative density between 0.880 and 0.957 at 15 °C in water, >10 percent but <35 percent ammonia				2		1						3
1005	Ammonia, anhydrous	1			1		3		1		1		7
2426	Ammonium nitrate, liquid (hot concentrated	1											1
1951	Argon, refrigerated liquid (cryogenic liquid)	2				1			2			3	8
1114	Benzene												0
1886	Benzylidene chloride									1			1
3016	Bipyridilium pesticides, liquid, toxic	1											1
1123	Butyl acetates						1						1
1403	Calcium cyanamide >0.1 percent of calcium carbide				1								1
2187	Carbon dioxide, refrigerated liquid	1	1		1		3		4	1		2	13
1719	Caustic alkali liquid, n.o.s.				1								1
1451	Cesium nitrate or Caesium nitrate	1											1
1477	Cesium nitrate or Caesium nitrate												0
3500	Chemical under Pressure, N.O.S.				1								2
3264	Corrosive liquid, acidic, inorganic, n.o.s.		1				1						2
3265	Corrosive liquid, acidic, organic, n.o.s.					1				1		1	3
3266	Corrosive liquid, basic, inorganic, n.o.s.	1					1						2
2922	Corrosive liquids, toxic, n.o.s.								1				1
2076	Cresols					1							1
2079	Diethylenetriamine											1	1
1768	Diffuorophosphoric acid, anhydrous	1											1
1032	Dimethylamine, anhydrous												0
1903	Disinfectants, liquid, corrosive, n.o.s.				1					1			2
3256	Elevated temperature liquid, flammable, n.o.s., with flashpoint >60 °C, at or above its flashpoint	2										2	4
3257	Elevated temperature liquid, n.o.s., =>100 °C and below its flashpoint (including molten metals,	2	1			2			1		1	3	10
3082	Environmentally hazardous substance, liquid, n.o.s.	2	2						2	1			8
3077	Environmentally hazardous substance, solid, n.o.s. (not including waste)		1				1						2
1170	Ethanol or Ethyl alcohol or Ethanol solutions or Ethyl alcohol solutions					2				1			3
3475	Ethanol and gasoline mixture or ethanol and motor spirit mixture or ethanol and petrol mixture, with >10% ethanol												0
2582	Ferric chloride, solution												0
1993	Flammable liquids, (Diesel) n.o.s.	6	13		4	1	6		1	1	7	1	40
2924	Flammable liquid, corrosive, n.o.s.								1				1
2209	Formaldehyde, solutions, with not less than 25 percent formaldehyde					3			1	1		1	6
1863	Fuel, aviation, turbine engine				1								1
1202	Gas oil	3											3
1203	Heating oil, light												
1203	Gasoline		6		7	1	7	4	7		2	2	36
1789	Hydrochloric acid										1		1
2014	Hydrogen peroxide, aqueous solutions > 20 percent but < 60 percent hydrogen peroxide (stabilized as					1							1
1791	Hypochlorite solutions					1					1	2	4
1219	Isopropanol or Isopropyl alcohol												0
3161	Liquefied gas, flammable, n.o.s.											1	1
3163	Liquefied gas, n.o.s.								1				1
2531	Methacrylic acid, inhibited											1	1
1230	Methanol										1		1
1247	Methyl methacrylate monomer, stabilized								1				1
1242	Methyldichlorosilane												0
1250	Methyltrichlorosilane												0
2031	Nitric acid other than red fuming		1			2			1	1		1	6
3375	Nitriles, toxic, flammable, n.o.s.					1						1	2

1977	Nitrogen, refrigerated liquid cryogenic liquid	1			2	1	1		2			1	8
1663	Nitrophenols (o-; m-; p-)					1							1
2787	Organotin pesticides, liquid, flammable, toxic, flashpoint less than 23 °C							1					1
1073	Oxygen, refrigerated liquid											1	1
1263	Paint related material including paint thinning, drying, removing, or reducing compound	3			4	1	1		1				10
1265	Pentanes				4								4
1266	Perfumery products with flammable solvents								1				1
1268	Petroleum distillates, n.o.s or Petroleum products,	3	2		1		1	1					8
1075	Petroleum gases	9	2		2	1		1	6	2	1	3	27
2312	Phenol, molten												0
3002	Phenoxy pesticides, liquid, toxic, flammable								1				1
1805	Phosphoric acid		1										1
1814	Potassium hydroxide solution						1						1
1281	Propyl formates							1					1
1866	Resin solution, flammable								1				1
3225	Self reactive liquid type D	1											1
1824	Sodium hydroxide solution		1			1	1			4	1	3	11
2055	Styrene monomer, inhibited								1			3	4
2448	Sulfur, molten	2											2
1830	Sulfuric acid with more than 51 percent acid		2		1		1	2		3			9
1999	Tars, liquid including road asphalt and oils, bitumen and cut backs						2						2
1294	Toluene	1				1			1				3
1298	Trimethylchlorosilane												0
1307	Xylenes												0
	Flamm/Danger	5	3	4		3			3			2	20
	Corrosive	1	4	1					4			1	11
	Hot Molten Sulfur		1										1
	Explosive												0
	Flamm Gas								1			1	2
	Non Flamm Gas		1						2				3
	Class 9								1				1

TRUCK TRAFFIC SURVEY RESULTS

-STATE ROUTES-



2019 MIAMI COUNTY
COMMODITY FLOW STUDY
OF
HAZARDOUS MATERIALS

TOTAL OBSERVATION SURVEY RESULTS

RAIL AND TRUCK



2019 MIAMI COUNTY
COMMODITY FLOW STUDY
OF
HAZARDOUS MATERIALS

2019 Miami County LEPC Commodity Flow Study

Sorted by Quantity

UN #	Chemical Name	Interstate Highway	Rail	State Route	Total
1075	Petroleum gases	27	75	4	106
1993	Flammable liquids, (Diesel) n.o.s.	40	6	2	48
1203	Gasoline	36	0	9	45
	Flamm/Danger	20	0	12	32
3257	Elevated temperature liquid, n.o.s., =>100 °C and below its flashpoint (including molten metals, molten salts, etc.)	10	16	1	27
1093	Acrylonitrile, stabilized	3	22	0	25
3082	Environmentally hazardous substance, liquid, n.o.s.	8	9	2	19
	Corrosive	11	0	9	20
1824	Sodium hydroxide solution	11	5	1	17
1830	Sulfuric acid with more than 51 percent acid	9	6	0	15
2187	Carbon dioxide, refrigerated liquid	13	0	1	14
1230	Methanol	1	11	0	12
1987	Alcohols, (Ethanol), n.o.s.	12	0	0	12
1263	Paint related material including paint thinning, drying, removing, or reducing compound	10	0	0	10
1268	Petroleum distillates, n.o.s or Petroleum products, n.o.s.	8	0	2	10
1791	Hypochlorite solutions	4	4	1	9
1977	Nitrogen, refrigerated liquid cryogenic liquid	8	0	1	9
1951	Argon, refrigerated liquid (cryogenic liquid)	8	0	0	8
1005	Ammonia, anhydrous	7	0	0	7
1114	Benzene	0	7	0	7
1265	Pentanes	4	2	0	6
2031	Nitric acid other than red fuming	6	0	0	6
2209	Formaldehyde, solutions, with not less than 25 percent formaldehyde	6	0	0	6
3065	Alcoholic beverages	5	1	0	6
2055	Styrene monomer, inhibited	4	1	0	5
1298	Trimethylchlorosilane	0	4	0	4
2312	Phenol, molten	0	4	0	4
3256	Elevated temperature liquid, flammable, n.o.s., with flashpoint >60 °C, at or above its flashpoint	4	0	0	4
1170	Ethanol or Ethyl alcohol or Ethanol solutions or Ethyl alcohol solutions	3	0	0	3
1202	Gas oil Heating oil, light	3	0	0	3
1219	Isopropanol or Isopropyl alcohol	0	3	0	3
1250	Methyltrichlorosilane	0	3	0	3
1294	Toluene	3	0	0	3
1789	Hydrochloric acid	1	2	0	3
1999	Tars, liquid including road asphalt and oils, bitumen and cut backs	2	0	1	3
2448	Sulfur, molten	2	1	0	3
2672	Ammonia solution, relative density between 0.880 and 0.957 at 15 °C in water, >10 percent but <35 percent ammonia	3	0	0	3
3265	Corrosive liquid, acidic, organic, n.o.s.	3	0	0	3
	Non Flamm Gas	3	0	0	3
1242	Methyldichlorosilane	0	2	0	2
1805	Phosphoric acid	1	1	0	2

1866	Resin solution, flammable	1	0	1	2
3077	Environmentally hazardous substance, solid, n.o.s. (not including waste)	2	0	0	2
3264	Corrosive liquid, acidic, inorganic, n.o.s.	2	0	0	2
3266	Corrosive liquid, basic, inorganic, n.o.s.	2	0	0	2
3375	Nitriles, toxic, flammable, n.o.s.	2	0	0	2
3475	Ethanol and gasoline mixture or ethanol and motor spirit mixture or ethanol and petrol mixture, with >10% ethanol	0	0	2	2
	Flamm Gas	2	0	0	2
1032	Dimethylamine, anhydrous	0	1	0	1
1073	Oxygen, refrigerated liquid	1	0	0	1
1123	Butyl acetates	1	0	0	1
1247	Methyl methacrylate monomer, stabilized	1	0	0	1
1266	Perfumery products with flammable solvents	1	0	0	1
1863	Fuel, aviation, turbine engine	1	0	0	1
1281	Propyl formates	1	0	0	1
1719	Caustic alkali liquid, n.o.s.	1	0	0	1
1307	Xylenes	0	1	0	1
1403	Calcium cyanamide >0.1 percent of calcium carbide	1	0	0	1
1451	Cesium nitrate or Caesium nitrate	1	0	0	1
1477	Cesium nitrate or Caesium nitrate	0	1	0	1
1663	Nitrophenols (o-; m-; p-;)	1	0	0	1
1768	Difluorophosphoric acid, anhydrous	1	0	0	1
1814	Potassium hydroxide, solution	1	0	0	1
1886	Benzylidene chloride	1	0	0	1
1903	Disinfectants, liquid, corrosive, n.o.s.	2	0	0	2
2014	Hydrogen peroxide, aqueous solutions > 20 percent but < 60 percent hydrogen peroxide (stabilized as necessary)	1	0	0	1
2076	Cresols	1	0	0	1
2079	Diethylenetriamine	1	0	0	1
2426	Ammonium nitrate, liquid (hot concentrated solution)	1	0	0	1
2531	Methacrylic acid, inhibited	1	0	0	1
2582	Ferric chloride, solution	0	1	0	1
2734	Amines, liquid, corrosive, flammable, n.o.s. or Polyamines, liquid, corrosive, flammable, n.o.s.	1	0	0	1
2787	Organotin pesticides, liquid, flammable, toxic, flashpoint less than 23 °C	1	0	0	1
2922	Corrosive liquids, toxic, n.o.s.	1	0	0	1
2924	Flammable liquid, corrosive, n.o.s.	1	0	0	1
3002	Phenoxy pesticides, liquid, toxic, flammable	1	0	0	1
3016	Bipyridilium pesticides, liquid, toxic	1	0	0	1
3092	1-Methoxy-2-propanol	1	0	0	1
3161	Liquefied gas, flammable, n.o.s.	1	0	0	1
3163	Liquefied gas, n.o.s.	1	0	0	1
3225	Self-reactive liquid type D	1	0	0	1
3500	Chemical under Pressure, N.O.S.	2	0	0	2
	Hot Molten Sulfur	1	0	0	1
	Explosive	0	0	1	1
	Class 9	1	0	0	1

2019 Miami County LEPC Commodity Flow Study
Totals by United Nation Number

UN #	Chemical Name	Interstate Highway	Rail	State Route	Total
1005	Ammonia, anhydrous	7	0	0	7
1032	Dimethylamine, anhydrous	0	1	0	1
1073	Oxygen, refrigerated liquid	1	0	0	1
1075	Petroleum gases	27	75	4	106
1093	Acrylonitrile, stabilized	3	22	0	25
1114	Benzene	0	7	0	7
1123	Butyl acetates	1	0	0	1
1170	Ethanol or Ethyl alcohol or Ethanol solutions or Ethyl alcohol solutions	3	0	0	3
1202	Gas oil Heating oil, light	3	0	0	3
1203	Gasoline	36	0	9	45
1219	Isopropanol or Isopropyl alcohol	0	3	0	3
1230	Methanol	1	11	0	12
1242	Methyldichlorosilane	0	2	0	2
1247	Methyl methacrylate monomer, stabilized	1	0	0	1
1250	Methyltrichlorosilane	0	3	0	3
1263	Paint related material including paint thinning, drying, removing, or reducing compound	10	0	0	10
1265	Pentanes	4	2	0	6
1266	Perfumery products with flammable solvents	1	0	0	1
1268	Petroleum distillates, n.o.s or Petroleum products, n.o.s.	8	0	2	10
1281	Propyl formates	1	0	0	1
1294	Toluene	3	0	0	3
1298	Trimethylchlorosilane	0	4	0	4
1307	Xylenes	0	1	0	1
1403	Calcium cyanamide >0.1 percent of calcium carbide	1	0	0	1
1451	Cesium nitrate or Caesium nitrate	1	0	0	1
1477	Cesium nitrate or Caesium nitrate	0	1	0	1
1663	Nitrophenols (o-; m-; p-)	1	0	0	1
1719	Caustic alkali liquid, n.o.s.	1	0	0	1
1768	Difluorophosphoric acid, anhydrous	1	0	0	1
1789	Hydrochloric acid	1	2	0	3
1791	Hypochlorite solutions	4	4	1	9
1805	Phosphoric acid	1	1	0	2
1814	Potassium hydroxide, solution	1	0	0	1
1824	Sodium hydroxide solution	11	5	1	17
1830	Sulfuric acid with more than 51 percent acid	9	6	0	15
1863	Fuel, aviation, turbine engine	1	0	0	1
1866	Resin solution, flammable	1	0	1	2
1886	Benzylidene chloride	1	0	0	1
1903	Disinfectants, liquid, corrosive, n.o.s.	2	0	0	2
1951	Argon, refrigerated liquid (cryogenic liquid)	8	0	0	8
1977	Nitrogen, refrigerated liquid cryogenic liquid	8	0	1	9
1987	Alcohols, (Ethanol), n.o.s.	12	0	0	12
1993	Flammable liquids, (Diesel) n.o.s.	40	6	2	48
1999	Tars, liquid including road asphalt and oils, bitumen and cut backs	2	0	1	3

2014	Hydrogen peroxide, aqueous solutions > 20 percent but < 60 percent hydrogen peroxide (stabilized as necessary)	1	0	0	1
2031	Nitric acid other than red fuming	6	0	0	6
2055	Styrene monomer, inhibited	4	1	0	5
2076	Cresols	1	0	0	1
2079	Diethylenetriamine	1	0	0	1
2187	Carbon dioxide, refrigerated liquid	13	0	1	14
2209	Formaldehyde, solutions, with not less than 25 percent formaldehyde	6	0	0	6
2312	Phenol, molten	0	4	0	4
2426	Ammonium nitrate, liquid (hot concentrated solution)	1	0	0	1
2448	Sulfur, molten	2	1	0	3
2531	Methacrylic acid, inhibited	1	0	0	1
2582	Ferric chloride, solution	0	1	0	1
2672	Ammonia solution, relative density between 0.880 and 0.957 at 15 °C in water, >10 percent but <35 percent ammonia	3	0	0	3
2734	Amines, liquid, corrosive, flammable, n.o.s. or Polyamines, liquid, corrosive, flammable, n.o.s.	1	0	0	1
2787	Organotin pesticides, liquid, flammable, toxic, flashpoint less than 23 °C	1	0	0	1
2922	Corrosive liquids, toxic, n.o.s.	1	0	0	1
2924	Flammable liquid, corrosive, n.o.s.	1	0	0	1
3002	Phenoxy pesticides, liquid, toxic, flammable	1	0	0	1
3016	Bipyridilium pesticides, liquid, toxic	1	0	0	1
3065	Alcoholic beverages	5	1	0	6
3077	Environmentally hazardous substance, solid, n.o.s. (not including waste)	2	0	0	2
3082	Environmentally hazardous substance, liquid, n.o.s.	8	9	2	19
3092	1-Methoxy-2-propanol	1	0	0	1
3161	Liquefied gas, flammable, n.o.s.	1	0	0	1
3163	Liquefied gas, n.o.s.	1	0	0	1
3225	Self-reactive liquid type D	1	0	0	1
3256	Elevated temperature liquid, flammable, n.o.s., with flashpoint >60 °C, at or above its flashpoint	4	0	0	4
3257	Elevated temperature liquid, n.o.s., =>100 °C and below its flashpoint (including molten metals, molten salts, etc.)	10	16	1	27
3264	Corrosive liquid, acidic, inorganic, n.o.s.	2	0	0	2
3265	Corrosive liquid, acidic, organic, n.o.s.	3	0	0	3
3266	Corrosive liquid, basic, inorganic, n.o.s.	2	0	0	2
3375	Nitriles, toxic, flammable, n.o.s.	2	0	0	2
3475	Ethanol and gasoline mixture or ethanol and motor spirit mixture or ethanol and petrol mixture, with >10% ethanol	0	0	2	2
3500	Chemical under Pressure, N.O.S.	2	0	0	2
	Flamm/Danger	20	0	12	32
	Corrosive	11	0	9	20
	Hot Molten Sulfur	1	0	0	1
	Explosive	0	0	1	1
	Flamm Gas	2	0	0	2
	Non Flamm Gas	3	0	0	3
	Class 9	1	0	0	1