

Miami International Airport

Summary of Annual Emissions (tons/year) for 2011 Annual Operating Report (AOR)

Emission Unit	Unit ID	VOCs	HAPs	PM	CO	NOx	SOx
Internal Floating Roof Jet-A Fuel Storage Tanks	004	0.61	0.024	NA	NA	NA	NA
Fixed Roof Jet-A Fuel Storage Tanks	005	10.48	0.42	NA	NA	NA	NA
Emergency Generators (less than 600 hp)	007	0.084	0.0003	0.075	0.226	1.050	0.069
Emergency Generators (greater than 600 hp)	008	0.184	0.0010	0.182	1.432	6.250	1.053
Chemical Use	010	8.76	1.59	NA	NA	NA	NA
Loading Racks	018	3.31	0.13	NA	NA	NA	NA
Total Annual Emissions (TPY)		23.44	2.17	0.26	1.66	7.30	1.12

Miami International Airport

2011 Jet-A Fuel Storage Tank Throughputs

Tank #	Roof Type	January	February	March	April	May	June	July	August	September	October	November	December	Total Annual Gallons	Ozone Season Gallons
13	IFR	3,282,631	4,128,709	2,757,225	4,673,670	4,148,967	3,257,522	4,199,639	3,407,665	4,162,340	3,365,640	4,195,364	4,196,493	45,775,865	10,864,826
14	IFR	3,282,631	4,128,709	2,757,225	2,550,262	4,148,967	3,257,522	4,199,639	3,407,665	4,162,340	3,365,640	4,195,364	4,196,493	43,652,457	10,864,826
15	IFR	2,641,455	2,655,999	3,308,179	1,572,973	2,552,360	2,603,454	1,993,832	2,612,197	2,183,996	2,771,547	2,267,389	3,376,327	30,539,708	7,209,483
16	IFR	2,641,455	2,655,999	2,883,883	1,997,542	2,552,360	2,603,454	1,993,832	2,612,197	2,183,996	2,771,547	2,267,389	3,376,327	30,539,981	7,209,483
17	IFR	2,642,987	2,739,349	1,799,904	1,594,264	2,168,703	2,543,545	2,560,710	2,095,178	3,070,391	1,953,559	2,712,741	2,793,549	28,674,880	7,199,433
18	IFR	2,642,987	2,739,349	2,224,200	1,594,264	2,168,703	2,543,545	2,560,710	2,095,178	3,070,391	1,953,559	2,712,741	2,793,549	29,099,176	7,199,433
24	FR	16,937,802	13,329,320	15,355,782	16,020,323	17,021,202	12,601,480	15,542,361	16,919,321	14,306,472	14,219,690	16,459,788	16,799,459	185,513,000	45,063,162
25	FR	16,300,514	15,919,615	15,591,167	16,367,069	13,395,572	16,804,997	16,799,555	13,202,371	15,121,850	13,435,626	16,563,632	16,790,261	186,292,229	46,806,923
26	FR	16,929,892	12,569,273	15,895,793	16,651,777	15,958,816	16,810,012	14,337,467	15,340,741	13,448,134	16,801,039	14,201,397	15,851,277	184,795,618	46,488,220
Totals		67,302,354	60,866,322	62,573,358	63,022,144	64,115,650	63,025,531	64,187,745	61,692,513	61,709,910	60,637,847	65,575,805	70,173,735	764,882,914	188,905,789
Internal Floating Roof Tank Totals:														208,282,067	
Fixed Roof Tank Totals:														556,600,847	

Notes:

- 1 Throughput figures compiled and provided by the fuel farm operator, Allied Aviation.
- 2 IFR = Internal Floating Roof.
FR = Fixed Roof.

Miami International Airport

2011 Internal Floating Roof Jet-A Fuel Storage Tank Emissions (Emission Unit ID: 004)

Tank Identification			Tank Dimensions (feet)			Tanks Capacity (gallons)			2011 Tank Throughputs			
No.	Status	Material Stored	Height	Depth Maximum	Depth Average	Diameter	Maximum	Working	Average	Gals/year	TO	bb/yr
13	In Use	Jet-A Fuel	40	37.33	35.33	70	1,155,000	1,074,052	644,431	45,775,865	43	1,089,902
14	In Use	Jet-A Fuel	40	37.83	35.83	70	1,155,000	1,088,438	653,063	43,652,457	40	1,039,344
15	In Use	Jet-A Fuel	40	35.83	21.50	60	840,000	757,392	454,435	30,539,708	40	727,136
16	In Use	Jet-A Fuel	40	35.83	21.50	60	840,000	757,392	454,435	30,539,981	40	727,142
17	In Use	Jet-A Fuel	40	35.83	21.50	60	840,000	757,392	454,435	28,674,880	38	682,735
18	In Use	Jet-A Fuel	40	35.83	21.50	60	840,000	757,392	454,435	29,099,176	38	692,838
Total Capacity of Internal Floating Roof Tanks =						5,670,000			gallons			

Fuel throughputs from Allied Aviation.

TO = Turn Overs = Tank Throughput + Working Capacity

Tank No.	Column, Shell and Roof			Rim Seal			Deck Type and Fittings					
	Columns	Int Shell	Ext Shell	Roof	System	Type	Hatch	Gauge Hatch	Well	Rim Vent	Roof Drain	Vac Break
13	32	Light Rust	White/Good	White/Good	Mech Shoe	Welded	--	Yes	Col./Lad.	Yes	--	--
14	32	Light Rust	White/Good	White/Good	Mech Shoe	Welded	--	Yes	Col./Lad.	Yes	--	--
15	9	Light Rust	White/Good	Gray/Good	Mech Shoe	Welded	Yes	Yes	Col.	Yes	Yes	Yes
16	14	Light Rust	White/Good	White/Good	Mech Shoe	Welded	Yes	Yes	Col.	Yes	Yes	Yes
17	9	Light Rust	White/Good	Gray/Good	Mech Shoe	Welded	Yes	Yes	Col.	Yes	Yes	Yes
18	9	Light Rust	White/Good	Gray/Good	Mech Shoe	Welded	Yes	Yes	Col.	Yes	Yes	Yes

Internal floating roof Jet-A storage tank VOC emissions calculated using EPA TANKS 4.09d Software:

Tank No.	Throughput (Gals/year)	Total Emissions			Withdrawal Loss		Rim/Fitting Loss		Withdrawal Loss (Ozone)		Rim/Fitting Loss (Ozone)	
		lbs/year	(lbs/day)	(tons/year)	(lbs/yr)	(tons/yr)	(lbs/yr)	(tons/yr)	(lbs/yr)	(lbs/day)	(lbs/yr)	(lbs/day)
#13	45,775,865	286.86	0.79	0.14	224.64	0.11	62.22	0.03	53.32	0.58	17.19	0.19
#14	43,652,457	276.44	0.76	0.14	214.22	0.11	62.22	0.03	53.32	0.58	17.19	0.19
#15	30,539,708	163.76	0.45	0.08	137.99	0.07	25.77	0.01	32.58	0.35	7.12	0.08
#16	30,539,981	181.12	0.50	0.09	148.00	0.07	33.12	0.02	34.94	0.38	9.15	0.10
#17	28,674,880	155.34	0.43	0.08	129.57	0.06	25.77	0.01	32.53	0.35	7.12	0.08
#18	29,099,176	157.26	0.43	0.08	131.49	0.07	25.77	0.01	32.53	0.35	7.12	0.08
TOTALS	208,282,067	1,220.78	3.34	0.61	985.91	0.49	234.87	0.12	239.22	2.60	64.89	0.71

Does not include the landing loss VOCs emissions (per API) since the tanks are typically never completely emptied out. Total loss during Ozone Season (lbs/day) = 3.31

Summary of internal floating roof Jet-A storage tank emissions for facility inventory:

VOCs	HAPs*	PM	CO	NOx	SOx
0.61	0.024	N/A	N/A	N/A	N/A

* Includes maximum of 4% total HAPs (ethylbenzene and naphthalene), per Jet-A fuel MSDS.

Miami International Airport

2011 Fixed Roof Jet-A Fuel Storage Tank Emissions (Emission Unit ID: 005)

Tank Identification		Tank Dimensions (Feet)				Tanks Capacity (gallons)			2011 Tank Throughputs			Other Tank Details			
No.	Status	Material Stored	Height	Depth Maximum	Liquid Depth Average	Diameter	Maximum	Working	Average	Gals/year	TO	bb/yr	Condition/Color	Roof Height (ft)	Pressure Setting
#3	Inactive	Jet-A Fuel	40	38.33	29.90	53.5	630,000	644,195	502,472	0	0	0	White/Good	0.063	Atm. Set.
#5	Inactive	Jet-A Fuel	40	38.42	29.96	53.5	630,000	645,641	503,600	0	0	0	White/Good	0.063	Atm. Set.
#7	Inactive	Jet-A Fuel	40	37.50	31.50	82.5	1,503,600	1,498,685	1,258,896	0	0	0	White/Good	0.063	Atm. Set.
#24	Active	Jet-A Fuel	48	46.08	37.34	120.0	4,015,200	3,898,230	3,157,566	185,513,000	48	4,416,976	White/Good	0.083	0.5 oz./sq in
#25	Active	Jet-A Fuel	48	46.00	29.46	120.0	4,015,200	3,891,462	2,490,536	186,292,229	48	4,435,529	White/Good	0.083	0.5 oz./sq in
#26	Active	Jet-A Fuel	48	46.00	27.61	120.0	4,015,200	3,891,462	2,334,877	184,795,618	47	4,399,896	White/Good	0.083	0.5 oz./sq in
							Total Capacity of All Fixed Roof Storage Tanks = 14,809,200 gallons								
							Total Capacity of Currently Active Fixed Roof Storage Tanks = 12,045,600 gallons								

Fuel throughputs from Allied Aviation.

TO = Turn Overs = Tank Throughput + Working Capacity

Fixed roof Jet-A storage tank VOC emissions calculated using EPA TANKS 4.09d Software:

Tank No.	Throughput (Gals/year)	Total Emissions			Working Loss		Breathing Loss		Working Loss (Ozone)		Breathing Loss (Ozone)	
		(lbs/year)	(lbs/day)	(tons/year)	(lbs/yr)	(tons/yr)	(lbs/yr)	(tons/yr)	(lbs/yr)	(lbs/day)	(lbs/day)	(lbs/day)
#3	0	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA
#5	0	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA
#7	0	0.00	0.00	0.00	NA	NA	NA	NA	NA	NA	NA	NA
#24	185,513,000	6,562.27	17.98	3.28	6,165.30	3.08	396.97	0.20	1,657.00	18.01	111.76	1.21
#25	186,292,229	7,174.96	19.66	3.59	6,490.25	3.25	684.71	0.34	1,800.60	19.57	192.64	2.09
#26	184,795,618	7,230.72	19.81	3.62	6,479.30	3.24	751.42	0.38	1,799.68	19.56	211.38	2.30
TOTALS	556,600,847	20,967.95	57.45	10.48	19,134.85	9.57	1,833.10	0.92	5,257.28	57.14	515.78	5.61

Summary of fixed roof Jet-A storage tank emissions for facility inventory. Total loss during Ozone Season (lbs/day) = 62.75

VOCs	HAPs*	PM	CO	NOx	SOx
10.48	0.42	N/A	N/A	N/A	N/A

* Includes maximum of 4% total HAPs (ethylbenzene, naphthalene), per Jet-A fuel MSDS.

Miami International Airport

2011 Annual Estimated Emissions from Emergency Generators (Emission Unit ID: 007 and 008)

Weight % sulfur in diesel^a = 0.5

List ID	Location	Rating		Hours of Operation ^b	VOCs	HAPs	PM	CO	NOx	SOx ^c
		(kW)	(HP)							
		Emission Factors for Generators < 600 HP (factors are in #/HP-hr) ^c >>>								
		Emission Factors for Generators > 600 HP (factors are in #/HP-hr) ^c >>>								
1	HGA BUILDING 9 (Added in October)	10	13	0.7	0.000705	0.000004	0.002700	0.005500	0.031000	0.024050
2	NE BASE GATE (Removed in June)	15	20	7.4	0.0000	0.000001	0.0002	0.0000	0.0000	0.0000
3	CENTRAL BASE GATE	23	31	5.2	0.0002	0.000001	0.0002	0.0005	0.002	0.0002
4	NW GATE	24	32	3.3	0.0001	0.000001	0.0001	0.0003	0.002	0.0001
5	SE GATE	25	34	36.7	0.0015	0.000006	0.0014	0.0041	0.019	0.0013
6	TUNNEL GATE	25	34	3.0	0.0001	0.000000	0.0001	0.0003	0.002	0.0001
7	NTD GATE	25	34	8.1	0.0003	0.000001	0.0003	0.0009	0.004	0.0003
8	SW GATE	30	40	4.1	0.0002	0.000001	0.0002	0.0006	0.003	0.0002
9	HGA ADMINISTRATION BUILDING	33	44	8.3	0.0005	0.000002	0.0004	0.0012	0.006	0.0004
10	TANK FARM FIRE FOAM HOUSE - DIKE AREA # 5	40	54	27.9	0.0018	0.000007	0.0016	0.0050	0.023	0.0015
11	TUNNEL TRAILER	45	60	7.6	0.0006	0.000002	0.0005	0.0015	0.007	0.0005
12	NW 20 ST VEHICLE GAS STATION	45	60	4.1	0.0003	0.000001	0.0003	0.0008	0.004	0.0003
13	BLDG 2122 (CCC)	50	67	7.1	0.0006	0.000002	0.0005	0.0016	0.007	0.0005
14	WEST CARGO LOAD RACK	55	74	6.4	0.0006	0.000002	0.0005	0.0016	0.007	0.0005
15	NEW GAC BLDG	81	109	5.1	0.0007	0.000003	0.0007	0.0021	0.010	0.0006
16	OPA FIRE STATION	100	134	4.6	0.0008	0.000003	0.0007	0.0019	0.009	0.0006
17	BLDG 43 - OLD PAN AM ROOM	105	141	4.0	0.0007	0.000003	0.0006	0.0018	0.009	0.0006
18	BLDG 3092	125	168	5.4	0.0011	0.000004	0.0010	0.0030	0.014	0.0009
19	HGA ADMIN. BUILDING #7 (Added in March)	125	168	43.0	0.0089	0.000035	0.0079	0.0241	0.112	0.0074
20	LS #68	125	168	4.8	0.0010	0.000004	0.0009	0.0027	0.012	0.0008
21	LS #69	125	168	4.5	0.0009	0.000004	0.0008	0.0025	0.012	0.0008
22	CC E - SATELLITE NORTH LOC. B	150	201	10.0	0.0025	0.000010	0.0022	0.0067	0.031	0.0021
23	KTA AFL VAULT	175	235	46.0	0.0133	0.000052	0.0119	0.0360	0.167	0.0111
24	MIA STATION (Added in October)	200	268	1.9	0.0006	0.000002	0.0006	0.0017	0.005	0.0005
25	NORTH SIDE FIRE STATION	250	335	2.9	0.0012	0.000005	0.0011	0.0032	0.015	0.0010
26	BLDG 3090 CUTE	260	349	2.8	0.0012	0.000005	0.0011	0.0033	0.015	0.0010
27	T&T (TNT) A.F.L. VAULT	290	389	2.3	0.0011	0.000004	0.0010	0.0030	0.014	0.0009
28	PARK # 2 - # 1 - FLAMINGO	300	402	4.2	0.0021	0.000008	0.0019	0.0056	0.026	0.0017
29	BLDG 33 (Added in August)	300	402	1.0	0.0005	0.000002	0.0004	0.0013	0.006	0.0004
30	OLD MAIN BREAKER ROOM - E1345	300	402	11.0	0.0085	0.000021	0.0049	0.0148	0.069	0.0045
31	MID FIELD FIRE STATION - BLDG 600	350	469	3.5	0.0020	0.000008	0.0018	0.0055	0.025	0.0017
32	BLDG 3202 CC FIELD FUEL	400	536	17.1	0.0113	0.000044	0.0101	0.0306	0.142	0.0094
33	TANK FARM NORTH GENERATOR - DIKE AREA # 4	400	536	19.0	0.0126	0.000049	0.0112	0.0340	0.158	0.0104
34	FIELD FUEL FARM II (Added Oct 2011)	410	550	1.5	0.0010	0.000004	0.0009	0.0028	0.013	0.0008
35	STATIONARY / FUEL FACILITY - DIKE AREA #1	410	550	11.2	0.0076	0.000030	0.0068	0.0206	0.095	0.0063
1	NW REJECTION POND	460	617	4.3	0.0009	0.000005	0.0009	0.0073	0.032	0.0054
2	CHILLER PLANT - WEST SIDE - ROOM 207	470	630	58.2	0.0129	0.000070	0.0126	0.1008	0.440	0.0742
3	AFL VAULT # 2 (745) (2201)	500	670	5.0	0.0012	0.000006	0.0012	0.0092	0.040	0.0068
4	AFL VAULT # 3 - BLDG 605 #2	505	677	2.9	0.0007	0.000004	0.0007	0.0054	0.024	0.0040
5	NEW REPUMP #2	505	677	29.8	0.0071	0.000038	0.0071	0.0555	0.242	0.0408
6	MIC STATION (Added Oct 2011)	515	690	0.6	0.0001	0.000001	0.0001	0.0011	0.005	0.0006
7	CC E - E4 - E-1786	520	697	5.6	0.0014	0.000007	0.0014	0.0107	0.047	0.0079
8	CC E SATELLITE - S1605	565	757	7.0	0.0019	0.000010	0.0019	0.0146	0.064	0.0107
9	BLDG 100	600	804	3.7	0.0010	0.000006	0.0010	0.0082	0.036	0.0060
10	PARK # 4 - FLAMINGO	620	831	1.3	0.0004	0.000002	0.0004	0.0030	0.013	0.0022
11	PARK # 2 - CONSUMER	750	1005	3.0	0.0011	0.000006	0.0011	0.0083	0.036	0.0061
12	PARK #7 - FLAMINGO	750	1005	4.0	0.0014	0.000008	0.0014	0.0111	0.046	0.0081
13	USDA	750	1005	3.0	0.0011	0.000006	0.0011	0.0083	0.036	0.0061
14	CC F / C WRAP #1 - F1620	750	1005	16.0	0.0087	0.000031	0.0086	0.0442	0.193	0.0325
15	CC F / C WRAP #2 - F1620	750	1005	7.3	0.0026	0.000014	0.0026	0.0202	0.088	0.0148
16	OPA NEW AFLV AULT	750	1005	16.7	0.0059	0.000032	0.0059	0.0462	0.202	0.0340
17	CHILLER PLANT - EAST SIDE - ROOM 214	750	1005	60.8	0.0215	0.000116	0.0214	0.1681	0.734	0.1236
18	AFL VAULT # 3 - BLDG 605 #1	900	1206	2.9	0.0012	0.000006	0.0012	0.0095	0.041	0.0068
19	FIS 2ND FLOOR - E2599	990	1287	4.6	0.0020	0.000011	0.0020	0.0158	0.069	0.0116
20	CC H - H11 / H15 - H1827	1,000	1,341	4.5	0.0025	0.000012	0.0023	0.0177	0.077	0.0130

List ID	Location	Rating		Hours of Operation ^b (hrs/yr)	VOCs (TPY)	HAPs (TPY)	PM (TPY)	CO (TPY)	NOx (TPY)	SOx ^c (TPY)
		(kW)	(HP)							
Emission Factors for Generators < 600 HP (factors are in #/HP-hr) ^c >>>										
Emission Factors for Generators > 600 HP (factors are in #/HP-hr) ^c >>>										
21	CC-F- P9 / F11 - P1813	1,400	1877	6.9	0.0036	0.000019	0.0036	0.0280	0.122	0.0206
22	CC-THROAT (LARGES TEN) (Removed in May)	1,400	1877	1.6	0.0011	0.000006	0.0011	0.0083	0.036	0.0061
23	CC A - A4 TUNNEL	1,400	1877	14.0	0.0093	0.000050	0.0092	0.0723	0.315	0.0631
24	NEW REPUMP #1 & NE GATT (Added in May)	1,500	2011	2.4	0.0017	0.000009	0.0017	0.0133	0.058	0.0098
25	BLDG 5	1,500	2011	8.5	0.0060	0.000032	0.0060	0.0470	0.205	0.0316
26	CC D - D43 # 1	1,500	2011	6.4	0.0045	0.000024	0.0045	0.0354	0.154	0.0260
27	CC D - D43 # 2	1,500	2011	6.4	0.0045	0.000024	0.0045	0.0354	0.154	0.0260
28	C-T INFILL #1	1,500	2011	1.8	0.0013	0.000007	0.0013	0.0100	0.043	0.0073
29	C-D INFILL #2	1,500	2011	2.1	0.0015	0.000008	0.0015	0.0116	0.051	0.0085
30	SOUTH TERMINAL ROTUNDA #1	1,500	2011	7.0	0.0050	0.000027	0.0049	0.0387	0.169	0.0285
31	SOUTH TERMINAL ROTUNDA #2	1,500	2011	7.0	0.0050	0.000027	0.0049	0.0387	0.169	0.0285
32	SOUTH TERMINAL ROTUNDA #3	1,500	2011	7.0	0.0050	0.000027	0.0049	0.0387	0.169	0.0285
33	BC INFILL #1	1,500	2011	14.8	0.0103	0.000057	0.0104	0.0818	0.357	0.0602
34	BC INFILL #2	1,500	2011	16.5	0.0117	0.000063	0.0116	0.0912	0.398	0.0671
35	BLDG 3090	2,000	2681	5.1	0.0048	0.000026	0.0048	0.0376	0.164	0.0277
36	CC A - A6 / A8 - A1139	2,000	2681	18.9	0.0179	0.000096	0.0177	0.1399	0.608	0.1025
37	CC - J7 #1	2,000	2681	8.3	0.0078	0.000042	0.0078	0.0612	0.267	0.0450
38	CC - J7 #2	2,000	2681	10.7	0.0101	0.000055	0.0100	0.0789	0.344	0.0580

^aWeight percentage of sulfur in diesel fuel (0.5%) is from typical Material Safety Data Sheet for diesel fuel.

^bHours of operation for all generators during 2011 provided by MDAD personnel.

^cEmission Factors from AP-42 Table 3.3-1, 3.4-1, 3.4-3, and 3.4-4 of Chapter 3, Stationary Internal Combustion Sources.

= Generators > 600 hp

Summary of 2011 Generator Emissions

	VOCs (TPY)	HAPs (TPY)	PM (TPY)	CO (TPY)	NOx (TPY)	SOx (TPY)
Generators < 600 HP	0.08	0.0003	0.07	0.23	1.05	0.07
Generators > 600 HP	0.18	0.001	0.18	1.43	6.25	1.05
Totals	0.27	0.001	0.26	1.66	7.30	1.12
Generators < 600 HP (lbs/yr)	167	0.653	169	453	2,100	139
Generators > 600 HP (lbs/yr)	367	1.979	365	2,865	12,500	2,107
Totals (lbs/day)	1.0	0.005	1.0	7.8	34.2	5.8

Total hours for generators <600 hp = 335.7 hours

Total kw-hrs for generators <600 hp = 50,544 kw-hrs

Total hp-hrs for generators < 600 hp = 67,754 hp-hrs

Total Btu for generators < 600 hp = 172,396,412 Btus

Diesel fuel heating value = 145,000 Btu/gal

Gallons of diesel burned = 1,189 gallons = 1,189 1000 gallons

Total hours for generators >600 hp = 386.8 hours

Total kw-hrs for generators >600 hp = 368,533 kw-hrs

Total hp-hrs for generators > 600 hp = 520,828 hp-hrs

Total Btu for generators > 600 hp = 1,325,211,626 Btus

Diesel fuel heating value = 145,000 Btu/gal

Gallons of diesel burned = 9,139 gallons = 9,139 1000 gallons

Miami International Airport

2011 Chemical Usage and Emissions

Stock Number	CAS No.	Hazardous Component	Component Percent	HAP	VOC Weight %	Method 24 VOC (g/l)	Specific Gravity	Quantity Purchased	Unit of Measure	Container Amount	Container Units	VOC (lbs)	HAP (lbs)	Gallons Used
01-1377	127-18-4	Tetrachloroethylene	95.0	YES	0.0		1.62	24 EA	EA	3 oz		0.00	7.22	0.6
01-6387	773218-5	Carbon Dioxide	80.0	NO	0.0		0.98	8 FA	FA	0.25 gal		0.00	FALSE	2.0
	64742-43-4	paraffin wax	5.0	NO						gal			FALSE	
	809-03-8	petroleum	3.0	NO						gal			FALSE	
	64742-53-6	naphthenic mineral oil	3.0	NO						gal			FALSE	
	9005-08-7	polyethylene glycol ether	4.0	NO						gal			FALSE	
	61791-44-4	ethoxylated tallow amine	1.0	NO						gal			FALSE	
	23265-71-8	petroleum	0.1	NO						gal			FALSE	
	8042-47-5	acrylamide sodium acrylate copolymer (with trideceth-6)	1.0	NO						gal			FALSE	
	52-51-7	antimicrobial agent	0.1	NO						gal			FALSE	
02-2229	6398-31-2	yellow pigment	0.1	NO						gal			FALSE	
	8009-03-8	Petroleum	60.0	NO	10.0		1.10	8 EA	EA	16 oz		0.92	FALSE	1.0
	7646-85-7	Zinc chloride	25.0	NO						oz			FALSE	
	12125-02-9	Ammonium chloride	5.0	NO						oz			FALSE	
02-2220	697-39-8	Triethanolamine hydrochloride	13.0	NO	0.0		1.10	8 EA	EA	2 oz		0.00	FALSE	0.1
	7646-85-7	Zinc chloride	7.0	NO						oz			FALSE	
	12125-02-9	Ammonium chloride	5.0	NO						oz			FALSE	
02-8790	85-68-7	Butyl benzyl phthalate	NP	NO	2.3	35	1.50	18 EA	EA	14 oz		0.57	FALSE	2.0
	64742-46-7	Distillates (Petroleum) Hydrotreated Middle		NO						oz			FALSE	
03-1707	115-10-6	Dimethyl Ether	40.0	NO	71.3	542	0.76	24 EA	EA	12 oz		10.17	FALSE	2.3
	67-64-1	Acetone	30.0	NO						oz			FALSE	
	110-54-3	Hexane	15.0	YES			0.76	24		12 oz			FALSE	2.14
	64742-89-8	Low BP Naphtha Solvent (petroleum), Light Aliph.	5.0	NO						oz			FALSE	
	142-82-3	n-Heptane	5.0	NO						oz			FALSE	
	110-82-7	Cyclohexane	5.0	NO						oz			FALSE	
03-1796	108-88-3	Toluene	5.0	YES			0.76	24		12 oz			FALSE	7.1
	64742-52-5	distillates (petroleum), hydrotreated heavy naphthenic	60.0	NO	13.0	162	1.25	76 EA	EA	12 oz		9.63	FALSE	1.6
	7782-42-5	graphite	30.0	NO						oz			FALSE	
	1305-78-8	calcium oxide	30.0	NO						oz			FALSE	
	64742-53-6	distillates (petroleum), hydrotreated light naphthenic	30.0	NO						oz			FALSE	
	7429-90-5	aluminum	10.0	NO						oz			FALSE	
	64741-44-2	distillates (petroleum), straight-run middle	5.0	NO						oz			FALSE	
	14808-60-7	silica quartz	1.0	NO						oz			FALSE	
03-1796A	64742-52-5	distillates (petroleum), hydrotreated heavy naphthenic	40.0	NO	0.0		1.17	32 EA	EA	4 oz		0.00	FALSE	1.6
	7782-42-5	graphite	10.0	NO						oz			FALSE	
	1305-78-8	calcium oxide	25.0	NO						oz			FALSE	
	64742-53-6	distillates (petroleum), hydrotreated light naphthenic	40.0	NO						oz			FALSE	
	7429-90-5	aluminum	10.0	NO						oz			FALSE	
	64741-44-2	mineral oil	5.0	NO						oz			FALSE	
03-1799	minature	food grade mineral oil	100.0	NO	0.0			1 DR	DR	59 gal		0.00	FALSE	55.0
06-2400	64-17-5	Ethanol	0.1	NO	0.2		0.84	336 EA	EA	17 oz		0.69	FALSE	44.6
	7632-00-0	Sodium Nitrite	0.0	NO						oz			FALSE	0.0
	67-56-1	Methanol	0.0	YES						oz			FALSE	
	75-28-5	Isobutane	0.1	NO						oz			FALSE	
	90-43-7	O-Phenylphenol	0.0	NO						oz			FALSE	
06-2408	7732-18-5	water	100.0	NO	5.0		0.99	396 EA	EA	18.5 oz		23.63	FALSE	57.2
06-2412	64742-47-8	Parefins, Naphthenic Solvent	40.0	NO	0.5		0.87	60 EA	EA	16 oz		0.26	FALSE	7.5
	8042-47-5	Mineral Oil	10.0	NO						oz			FALSE	
	61790-12-3	Tall Oil Acid	10.0	NO						oz			FALSE	
	68131-39-5	Ethoxylated Alcohols (C12:15 parent-7)	7.0	NO						oz			FALSE	
	57-98-6	Propylene Glycol	5.0	NO						oz			FALSE	
	102-71-6	Triethanolamine	1.5	NO						oz			FALSE	
06-2421	6881-52-9	sodium hypochlorite	6.0	NO	93.0		1.06	384 EA	EA	1 gal		3.20176	FALSE	384.0
06-2431	1310-73-2	sodium hydroxide	6.0	NO	0.0		1.06	228 EA	EA	1 gal		0.00	FALSE	228.0
	111-78-2	2-butoxysethanol	5.0	NO						oz			FALSE	
	6884-93-0	silicic acid disodium salt	5.0	NO						oz			FALSE	
08-0091	29911-28-2	dipropylene glycol butyl ether	5.0	NO	8.3	100	1.20	46 GL	GL	1 gal		40.03	FALSE	0.4
	57-98-6	propylene glycol	5.0	NO						oz			FALSE	
08-0092	37244-96-5	Nepheline sy emile	5.0	NO	3.4	46	1.39	48 GL	GL	1 gal		18.92	FALSE	0.4
08-0921	13463-67-7	Titanium dioxide	25.0	NO	7.1	100	1.40	4 GL	GL	1 gal		3.94	FALSE	4.0
	1314-13-2	Zinc oxide	15.0	NO						oz			FALSE	
08-1154	66782-48-9	Mineral Spirit	5.0	NO	2.0	33	1.63	132 EA	EA	10.1 oz		2.87	FALSE	10.4
	107-21-1	Ethylene Glycol	2.0	YES			1.63	132 EA	EA	10.1 oz		2.83	FALSE	2.83
08-1204	Various	Various	2.0	NO	30.9	550	1.08	4 EA	EA	32 oz		4.59	FALSE	1.0
08-1210	64741-46-7	Naphtha	100.0	NO	9.6	73	0.76	24 EA	EA	1 gal		14.61	FALSE	24.0
08-1211	108-88-3	Toluene	30.0	YES	47.8	406	0.85	40 GL	GL	1 gal		135.44	FALSE	40.0

(Substituted MSDS information for MIPACLES-Kingco 13-114 Aerosol Adhesive)

Stock Number	CHEMICAL / MATERIAL	CAS No.	Hazardous Component	Component Percent	HAP	VOC Weight %	Method 24 VOC (g/l)	Specific Gravity	Quantity Purchased	Unit of Measure	Container Amount	Container Units	VOC (lbs)	HAP (lbs)	Gallons Used
67-56-1	Methanol	67-56-1	Methanol	3.0	YES			0.85	40	GL	1 gal			8.51	
8030-30-6	VM & P Naphtha	8030-30-6	VM & P Naphtha	25.0	NO									FALSE	
1330-20-7	Xylene	1330-20-7	Xylene	20.0	YES			0.85	40	GL	1 gal			56.71	
67-64-1	Acetone	67-64-1	Acetone	50.0	NO									FALSE	
108-88-3	Toluene	108-88-3	Toluene	43.0	YES	58.0		0.74	64	EA	10 oz		23.49	18.23	6.6
108-88-3	Toluene	108-88-3	Toluene	45.0	YES	58.0		0.74	216	CN	10 oz		60.40	46.87	16.9
108-88-3	Toluene	108-88-3	Toluene	45.0	YES	58.0		0.74	108	EA	10 oz		30.20	23.49	8.4
108-57-8	n-butane	108-57-8	n-butane	25.0	NO	63.0		0.67	60	EA	10 oz		16.50	FALSE	4.7
108-88-3	Toluene	108-88-3	Toluene	15.0	YES			0.67	60	EA	10 oz			3.93	
13463-67-7	titanium dioxide	13463-67-7	titanium dioxide	5.0	NO									FALSE	
64742-89-8	aliphatic petroleum distillates	64742-89-8	aliphatic petroleum distillates	8.0	NO									FALSE	
64742-95-6	aromatic hydrocarbon	64742-95-6	aromatic hydrocarbon	5.0	NO									FALSE	
67-64-1	acetone	67-64-1	acetone	30.0	NO									FALSE	
74-98-6	propane	74-98-6	propane	25.0	NO									FALSE	
52640-81-0	2-propenoic acid polymer	52640-81-0	2-propenoic acid polymer	30.0	NO	38.3			48	EA	10.3 oz		0.00	FALSE	3.9
50-00-0	Formaldehyde	50-00-0	Formaldehyde	1.0	YES				48		10.3 oz			0.00	
140-88-5	ethyl acrylate	140-88-5	ethyl acrylate	0.0	NO									FALSE	
75-07-0	Acetaldehyde	75-07-0	Acetaldehyde	1.0	YES				48		10.3 oz			FALSE	
79-06-1	acrylamide	79-06-1	acrylamide	0.0	NO				48		10.3 oz			FALSE	
107-131-1	Acrylonitrile	107-131-1	Acrylonitrile	0.0	NO									FALSE	
25067-01-0	2-propenoic acid, butyl ester, polymer with ethenyl acetate	25067-01-0	2-propenoic acid, butyl ester, polymer with ethenyl acetate	10.0	YES				48		10.3 oz			FALSE	
108-88-3	Toluene	108-88-3	Toluene	0.0	YES				48		10.3 oz			FALSE	
71-43-2	Benzene	71-43-2	Benzene	0.0	YES				48		10.3 oz			FALSE	
106-89-8	spichlorohydrin	106-89-8	spichlorohydrin	0.0	NO									FALSE	
8052-41-3	mineral spirits	8052-41-3	mineral spirits	5.0	NO									FALSE	
25265-77-4	propenoic acid, 2-methyl-, monoester with 2,2,4-trimethyl-1,3-	25265-77-4	propenoic acid, 2-methyl-, monoester with 2,2,4-trimethyl-1,3-	5.0	NO									FALSE	
14808-60-7	quartz	14808-60-7	quartz	30.0	NO									FALSE	
1332-58-7	aluminum silicate	1332-58-7	aluminum silicate	5.0	NO									FALSE	
NA	aqueous vinyl acet. lic. emulsion	NA	aqueous vinyl acet. lic. emulsion	20.0	NO	22.0		2.00	48	EA	32 oz		44.04	FALSE	12.0
65997-17-3	soda lime borosilicate	65997-17-3	soda lime borosilicate	4.0	NO									FALSE	
1317-65-3	calcium carbonate	1317-65-3	calcium carbonate	70.0	NO									FALSE	
124-68-5	amino methyl propanol	124-68-5	amino methyl propanol	0.1	NO									FALSE	
57-35-6	propylene glycol	57-35-6	propylene glycol	1.0	NO									FALSE	
107-21-1	Ethylene Glycol	107-21-1	Ethylene Glycol	6.6	YES	6.6		1.20	16	GL	1 gal		10.57	10.97	16.0
014807-96-6	lac	014807-96-6	lac	5.0	NO									FALSE	
57-55-6	propylene glycol	57-55-6	propylene glycol	7.5	NO									FALSE	
67-53-0	Isopropyl Alcohol	67-53-0	Isopropyl Alcohol	5.0	NO	10.0		1.29	12	GL	1 gal		12.89	FALSE	12.0
5131-66-8	glycol ether	5131-66-8	glycol ether	5.0	NO									FALSE	
108-88-3	Toluene	108-88-3	Toluene	5.5	YES	37.8		1.20	4	GL	1 gal		15.13	3.40	4.0
74-98-6	Propane	74-98-6	Propane	15.7	NO									FALSE	
1330-20-7	Xylene	1330-20-7	Xylene	13.6	YES									FALSE	
8052-41-3	Standard Solvents	8052-41-3	Standard Solvents	40.0	NO	18.1		1.38	4	GL	1 gal		8.34	FALSE	4.0
14807-96-6	Magnesium Silicate	14807-96-6	Magnesium Silicate	25.0	NO									FALSE	
13463-67-7	Titanium Dioxide	13463-67-7	Titanium Dioxide	20.0	NO									FALSE	
12135-86-3	Sepentine	12135-86-3	Sepentine	5.0	NO									FALSE	
14808-60-7	Microcrystalline Silica	14808-60-7	Microcrystalline Silica	5.0	NO									FALSE	
100-41-4	Ethylbenzene	100-41-4	Ethylbenzene	2.0	YES			1.36	4	GL	1 gal		16.56	FALSE	0.46
74-98-6	Propane	74-98-6	Propane	22.0	NO	58.8		0.90	48	EA	10 oz			FALSE	3.8
67-64-1	Acetone	67-64-1	Acetone	20.9	NO									FALSE	
106-97-8	n-Butane	106-97-8	n-Butane	12.9	NO									FALSE	
108-88-3	Toluene	108-88-3	Toluene	12.8	YES									FALSE	
64742-89-8	VM&P Naphtha	64742-89-8	VM&P Naphtha	11.4	NO			0.90	48	EA	10 oz			FALSE	3.99
64742-47-8	Mineral Spirits	64742-47-8	Mineral Spirits	4.0	NO									FALSE	
13463-67-7	Titanium Dioxide	13463-67-7	Titanium Dioxide	2.7	NO									FALSE	
67-64-1	Isopropyl Alcohol	67-64-1	Isopropyl Alcohol	2.3	NO									FALSE	
74-98-6	Propane	74-98-6	Propane	15.8	NO	53.6		0.90	84	EA	10 oz		26.41	FALSE	6.6
108-88-3	Toluene	108-88-3	Toluene	6.2	YES				84	EA	10 oz			3.09	
1330-20-7	Xylene	1330-20-7	Xylene	3.4	YES				84	EA	10 oz			1.67	
112-34-5	Various	112-34-5	Various	100.0	NO	8.2		0.99	99	CN	5 gal		569.71	FALSE	690.0
471-34-1	2-(2-butoxyethoxy)-ethanol	471-34-1	2-(2-butoxyethoxy)-ethanol	1.0	NO	8.5		0.83 lbs/gal	102	CN	5 gal		423.90	FALSE	510.0
13463-67-7	titanium dioxide	13463-67-7	titanium dioxide	13.0	NO									FALSE	
8052-41-3	mineral spirits	8052-41-3	mineral spirits	25.0	NO	30.1		1.35	102	CN	5 gal			FALSE	4.0
64742-95-6	aromatic hydrocarbon	64742-95-6	aromatic hydrocarbon	5.0	NO									FALSE	
13330-65-9	zinc chromate	13330-65-9	zinc chromate	3.9	NO									FALSE	
100-41-1	Ethylbenzene	100-41-1	Ethylbenzene	0.1	YES									FALSE	
67-56-1	Methanol	67-56-1	Methanol	2.0	YES									FALSE	
67-56-1	Methanol	67-56-1	Methanol	2.0	YES	3.5		1.66	49	PL	90 gal		617.40	348.88	1,240.0
67-56-1	Methanol	67-56-1	Methanol	2.0	YES	3.5		1.66	49	PL	90 gal		970.20	548.24	1,980.0
67-56-1	Methanol	67-56-1	Methanol	2.0	YES	3.5		1.66	49	PL	90 gal		1,021.72	3,690.0	
67-56-1	Methanol	67-56-1	Methanol	2.0	YES	3.5		1.66	49	PL	90 gal		661.50	373.80	1,350.0
68952-35-2	Graco Throat Seal Liquid PUMP OIL FOR TIPS	68952-35-2	Graco Throat Seal Liquid PUMP OIL FOR TIPS	2.0	YES	3.5		1.66	49	PL	90 gal		176.40	99.68	360.0
67-56-1	Methanol	67-56-1	Methanol	99.0	NO	0.0								FALSE	5.0
67-56-1	Methanol	67-56-1	Methanol	5.0	YES	22.4		1.74	4	PL	90 gal		1,167.53	260.61	360.0

Stock Number	CAS No.	Hazardous Component	Component Percent	HAP	VOC Weight %	Method 24 VOC (g/l)	Specific Gravity	Quantity Purchased	Unit of Measure	Container Amount	Container Units	VOC (lbs)	HAP (lbs)	Gallons Used
08-6248	25265-77-4	Hexanol	2.0	NO										
08-6450	67-56-1	Methanol	2.0	YES	3.4	59	1.72	100	CN	5 gal		246.03	143.05	500.0
	64742-99-8	Aliphatic Hydrocarbons (VM&P Naphtha)	50.0	NO	62.0		0.85	4	GL	1 gal		17.67	FALSE	0.0
	8052-41-3	Aliphatic Hydrocarbons (Mineral Spirits)	20.0	NO									FALSE	
08-6463	5171300-53	Aromatic Polyisocyanate Resin	60.0	NO	6.0		1.32	288	EA	10.1 oz		15.01	FALSE	22.7
	26761-40-0	Diisocyanate Phthalate	40.0	NO									F-LSB	
08-6700		Various	100.0	NO	8.3	99	1.20	30	GL	1 gal		24.77	FALSE	30.0
	0123-86-4	N-Butyl Acetate	100.0	NO	8.3	99	1.20	108	GL	1 gal		89.17	FALSE	108.0
08-8203	13463-67-7	Titanium Dioxide	5.0	NO	7.8	93	1.20	120	EA	10 oz		7.27	FALSE	9.4
	96-29-7	Methyl Ethyl Ketone	5.0	NO	0.5	5	1.10	288	EA	10.1 oz		0.95	FALSE	22.7
08-8207		Various	100.0	NO	51.0		1.20	22	GL	1 gal		112.29	FALSE	22.0
08-8686		Various	100.0	NO	49.7		0.85	132	EA	18 oz		65.40	FALSE	18.6
08-8709		Various	100.0	NO	60.7		0.85	133	EA	18 oz		80.46	FALSE	18.7
08-8711		Various	100.0	NO	62.8	515.8	0.85	130	EA	15 oz		68.81	FALSE	15.3
08-8713		Various	100.0	NO	10.0	533.4	1.38	38	GL	1 gal		55.24	FALSE	48.0
08-8752	66402-68-4	amorphous aluminum silicate	100.0	NO	30.0		1.68	204	EA	13 oz		86.96	FALSE	20.7
08-9010	13463-67-7	Titanium Dioxide	100.0	NO									FALSE	
		proprietary acrylic polymer	10.0	NO									FALSE	
	471-34-1	carbonic acid calcium salt	30.0	NO									FALSE	
	64742-48-9	heavy hydro-treated naphtha	30.0	NO									FALSE	
	37244-96-5	naphthalene syenite	30.0	NO									FALSE	
	94-28-0	triethylene glycol bis(2-ethylhexanoate)	5.0	NO									FALSE	
	12174-11-7	polygorskite	1.0	NO									FALSE	
	110-82-7	Cyctohexane	50.0	NO	32.3		1.14	1304	EA	10.5 oz		415.94	FALSE	107.0
21-0029	1332-58-7	Kaolin	20.0	NO									FALSE	
	13463-67-7	Titanium Oxide	20.0	NO									FALSE	
	142-82-5	Heptane	NO	NO									FALSE	
	14664-46-1	Cristobalite	NO	NO									FALSE	
	14898-60-7	Quartz	1.0	NO									FALSE	
	26471-45-4	Benzene, 1,3-Dichethyl-	5.0	NO									FALSE	
	42260-76-6	Heptane	NO	NO									FALSE	
	64742-16-1	Petroleum Resin	20.0	NO									FALSE	
	64742-89-8	Solvent Naphtha	20.0	NO									FALSE	
	68410-97-9	Distillates	20.0	NO									FALSE	
	9003-55-8	Benzene	5.0	YES			1.44	1304	EA	10.5 oz		64.37	FALSE	
	20368-38-6	bisphenol A, epichlorohydrin based epoxy resin	100.0	NO	0.3		1.15	32	KT	18 oz		0.13	FALSE	4.5
21-0661	1317-65-3	calcium carbonate	50.0	NO	0.0		1.80	46	EA	58 lb		0.00	FALSE	11.9
	14808-60-7	quartz	5.0	NO									FALSE	
24-2401	9004-82-4	sodium lauryl ether sulfate	3.0	NO	2.0		1.00	2	DR	55 gal		18.35	FALSE	110.0
		deoprenol glycol	3.0	NO									FALSE	
		water dye	90.0	NO									FALSE	
	67-63-0	Isopropanol	2.0	NO									FALSE	
		fragrance	NO	NO									FALSE	
24-6301		cocodihexanoamide	2.0	NO	76.6		1.01	3	DR	55 gal		1,059.36	FALSE	165.0
		natural detergents	5.0	NO									FALSE	
	64741-65-7	Naphtha	NO	NO									FALSE	
24-6963		inorganic fillers	100.0	NO	99.3	755	0.76	10	DR	59 gal		3,463.19	FALSE	590.0
25-0805		acrylic polymer	23.0	NO	5.2	72	1.38	12	CN	5 gal		36.03	FALSE	60.0
	13463-67-7	Titanium Dioxide	27.9	NO									FALSE	
	26930-20-1	milk-vitc	5.6	NO									FALSE	
	13845-36-8	additives	2.8	NO									FALSE	
25-8901	8052-42-4	petroleum asphalt	55.0	NO	24.0	250	1.04	2	CN	4.7 oz		0.15	FALSE	0.1
	8052-41-3	Stoddard Solvents	35.0	NO									FALSE	
	9004-34-6	cellulose fibers	10.0	NO									FALSE	
	1317-65-3	inorganic fillers	10.0	NO									FALSE	
	mixture	modifier	10.0	NO									FALSE	
27-0083	52304-36-6	ethyl butylacrylaminoacrylate	49.1	NO	49.1		0.80	136	EA	7.7 oz		18.77	FALSE	5.7
	6197-30-4	octocrylene	20.0	NO									FALSE	
	9466-77-3	octinoxate	10.0	NO									FALSE	
	118-60-5	octisalate	7.5	NO									FALSE	
	131-57-7	oxybenzone	5.0	NO									FALSE	
27-0086	64742-47-8	Isoparaffinic Hydrocarbon	90.0	NO	99.0		0.78	14	EA	14 oz		101.68	FALSE	15.8
	67-63-0	Isopropanol	10.0	NO									FALSE	
	124-38-9	Carbon Dioxide	5.0	NO									FALSE	
	7696-12-0	Tetramethrin	0.2	NO									FALSE	
	26002-90-2	D-Phenothrin	0.1	NO									FALSE	
	64742-52-5	mineral oil	50.0	NO	3.0		0.93	196	EA	11 oz		3.92	FALSE	16.8
27-0320	68476-86-8	LRC (propellant)	25.0	NO									FALSE	
	proprietary	corrosion inhibitor	20.0	NO									FALSE	
	111-76-2	2-butanol	3.0	NO									FALSE	
27-6285	Various	Various	100.0	NO	0.0		0.90	40	EA	14.5 oz		0.00	FALSE	4.5

Stock Number	Chemical / Material	CA9 No.	Hazardous Component	Component Percent	HAP	VOC Weight %	Method 24 VOC (g/l)	Specific Gravity	Quantity Purchased	Unit of Measure	Container Amount	Container Units	VOC (lbs)	HAP (lbs)	Column Used
27-6286	3M Super 77 Adhesive Spray 14 oz CAN	74-98-6	Propane	13.0	NO	69.5	468	0.67	110 EA	EA	16.75 oz		56.18	FALSE	14.4
		106-97-8	Butane	12.0	NO									FALSE	
		110-54-3	Hexane	35.0	YES			0.67	110 each	each	16.75 oz			28.28	
		108-88-3	Toluene	4.0	YES			0.67	110 each	each	16.75 oz			3.23	
		67-64-1	Acetone	20.0	NO									FALSE	
27-6288	LUBRICANT SILICONE 16 OZ.	106-97-8	Butane	12.0	NO	60.0		1.00	96 EA	EA	11 oz		41.28	FALSE	8.3
		182-82-3	Heptane	40.0	NO									FALSE	
		63148-62-9	Silicon	4.0	NO									FALSE	
		67-64-1	Dimethyl Ketone	42.0	NO									FALSE	
		74-98-6	Propane	8.0	NO									FALSE	
27-6289	Coastal OIL TWO CYCLE PREMIUM E.A.501.2.6	NA	heavy, paraffinic petroleum distillates	80.0	NO	0.0		0.87	168 EA	EA	2.6 oz		0.00	FALSE	3.4
		64742-47-8	Polyamine additive	20.0	NO									FALSE	
27-6292	LUBRICANT WD-40	64742-47-8	Aliphatic Hydrocarbon	50.0	NO	30.4	412	0.82	480 EA	EA	16 oz		206.16	FALSE	60.0
		64742-47-8	Petroleum Based Oil	25.0	NO									FALSE	
		124-38-9	Carbon Dioxide	3.0	NO									FALSE	
			Non-Hazardous	10.0	NO									FALSE	
27-6600	LOCITITE RETAINING COMPOUND	64742-52-2	hydro treated light naphthenic distillate	100.0	NO	38.7	426	1.10	12 EA	EA	1.69 oz		0.56	FALSE	0.2
27-8749	OIL HYDRAULIC MOBIL DTF 13M	64742-52-2	hydro treated light naphthenic distillate	99.0	NO	0.0		0.92	5 DR	DR	55 gal		0.00	FALSE	275.0
27-8750	LUBRIPLATE "3V" OIL 55 GAL DRUM	12001-85-3	heavy, hydrotreated naphthenic distillates	1.0	NO				1 DR	DR	55 gal		0.00	FALSE	55.0
		64742-52-5	mixed zinc carboxylates	1.0	NO									FALSE	
		8008-20-6	olefin sulfide / alkyl imidazole	1.0	NO									FALSE	
		25376-86-3	petroleum hydrocarbon	1.0	NO									FALSE	
		64742-58-1	acrylate copolymer	1.0	NO									FALSE	
29-0274	ADHESIVE COVE BASE TUBE (HENRY440)30PL OZ	Various	Various	100.0	NO	38.0		0.88	112 EA	EA	30 oz		72.96	FALSE	26.3
29-8023	ADHESIVE FLOOR TILE AZROCK BID #4979	64742-89-8	VM&P Naphtha	3.0	NO	3.0		1.00	24 GL	GL	1 gal		6.00	FALSE	24.0
29-8051	GLUE CARPENTERS WOOD GLUE ONLY 16 OZ.	Various	Various	100.0	NO	54.5		1.10	20 EA	EA	16 oz		12.50	FALSE	2.5
29-8599	ADHESIVE CRAZY GLUE 3CC TUBE	Various	Various	100.0	NO	28.0		1.08	160 LA	LA	0.07 oz		0.19	FALSE	0.1
43-0030	Other ADHESIVE PVC CLEAR 32 OZ CAN	109-99-9	Tetrahydrofuran	60.0	NO	84.0		0.94	4 EA	EA	32 oz		6.59	FALSE	1.0
		78-99-3	methyl ethyl ketone	15.0	NO									FALSE	
		67-64-1	acetone	25.0	NO									FALSE	
		9002-86-2	pvc resin	20.0	NO									FALSE	
		108-94-1	cyclohexanone	25.0	NO									FALSE	
		112945-52-5	amorphous fumed silica	4.0	NO									FALSE	
43-0032	JC Whitlam CLEANER PVC (1QT. CAN)	78-98-3	Methyl Ethyl Ketone	40.0	NO	80.0		0.93	22 EA	EA	32 oz		34.13	FALSE	5.5
		67-64-1	Acetone	20.0	NO									FALSE	
		109-99-9	Tetrahydrofuran	40.0	NO									FALSE	
43-4998	REWARD WATER WEEB KILLER	40487-42-1	Diquat Bromide	37.3	NO	0.0		0.93	22 EA	EA	32 oz		0.00	FALSE	450.0
43-4999	PENDULUM AQUACAP	Various	Various	38.7	NO	0.0		1.17	0 GL	GL	2.5 gal		0.00	FALSE	0.0
43-5000	ROUND UP PRO 30 GAL DRUM	Various	Various	100.0	NO	0.0		0.57	17 DR	DR	30 gal		0.00	FALSE	510.0
43-5001	ROUND UP PRO PACKETS 1.5 OZ	114370-14-8	ammonium salt of glyphosate	73.3	NO	0.0		0.57	4 CS	CS	1.5 oz		0.00	FALSE	0.0
		85-00-7	diquat dibromide	2.9	NO									FALSE	
			other ingredients	23.8	NO									FALSE	
43-5004	Chem Labs Products CHLORINE TABLETS 3" IN 30W PAIL	87-90-1	trichloro-s-triazinetrione	95.0	NO	0.0		2.19	6 EA	EA	50 lb		0.00	FALSE	2.2
43-5007	RODIO WEEB KILLER	038641-94-0	glyphosate IPA	53.8	NO	0.0		1.29	15 DR	DR	30 gal		0.00	FALSE	450.0
86-1085	North Honeywell EYEWASH 32OZ REPLACEMENT BOTTLE / 1		purified water	98.0	NO	0.0		1.00	38 BT	BT	32 oz		0.00	FALSE	14.5
87-1014	ALCOHOL ISOPROPYL "RUBBING" 16 OZ BT.	67-63-0	Isopropyl Alcohol	70.0	NO	100.0		0.88	106 BT	BT	16 oz		965.47	FALSE	132.0
87-1050	PEROXIDE "HYDROGEN"	7722-84-1	Hydrogen Peroxide	100.0	NO	0.0		1.00	48 BT	BT	16 oz		0.00	FALSE	6.0
									TOTALS				17,529.18	3,176.11	15,108.8

NOTE: Inventory data includes those chemicals/materials that contain VOC or HAP components and for which MDAD provided 2011 purchase amounts. All purchased amounts are assumed to be consumed and all volatile components are assumed to be emitted.

Miami International Airport
2011 Summary of Chemical Use Emissions
(Emission Unit ID: 010)

Pollutant	2011 Emissions	
	lbs	tons
Total VOC	17,529.18	8.76
Total HAP	3,176.11	1.59
Individual HAP		
Acetaldehyde	0.00	0.00
Acrylonitrile	0.00	0.00
Benzene	64.37	0.03
Cumene	0.00	0.00
Ethylbenzene	0.50	0.00
Ethylene Glycol	13.40	0.01
Formaldehyde	0.00	0.00
Glycol Ethers	0.00	0.00
Hexane	30.42	0.02
Hydrochloric Acid	0.00	0.00
Methanol	2,804.88	1.40
Methyl Isobutyl Ketone	0.00	0.00
Methylene Chloride	0.00	0.00
Tetrachloroethylene	7.22	0.00
Toluene	191.51	0.10
Vinyl Acetate	0.00	0.00
Xylene	63.83	0.03
Totals	3,176.11	1.59

Miami International Airport

2011 South and West Cargo Loading Racks Usage

South Rack	Gallons	Transactions	West Rack	Gallons	Transactions	Totals
January	2,991,248	547	January	16,409,526	2,126	
February	2,625,045	484	February	15,991,637	2,088	
March	8,921,063	1,304	March	14,269,646	1,919	
April	8,835,826	935	April	17,267,045	2,536	
May	3,417,047	618	May	16,224,295	2,132	
June	3,259,550	570	June	15,428,895	2,016	18,688,445
July	4,117,304	706	July	15,771,694	2,106	19,888,998
August	3,726,130	662	August	15,704,891	2,064	19,431,021
September	3,240,254	596	September	15,666,676	2,051	
October	3,544,742	674	October	16,841,087	2,240	
November	4,371,202	708	November	17,980,507	2,339	
December	4,520,653	753	December	17,957,654	2,345	
Totals:	53,570,064	8,557	Totals:	195,513,553	25,962	249,083,617

58,008,464

Notes:

- 1 Throughput figures compiled and provided by the load rack operator, Allied Aviation.
- 2 Ozone season is June, July, and August.

Miami International Airport

2011 South and West Cargo Loading Rack Emissions

(Emission Unit ID: 018)

The South Loading Rack is located next to Dike Area #1 at the Fuel Farm or MIA. The rack has four (4) loading positions and is capable of loading Jet-A fuel from bulk storage tanks to tanker trucks of capacities ranging from 2,500 to 17,500 gallons, by submerged fill loading, at ~ 600 gallons per minute.

The West Cargo Loading Rack is located in the West Cargo Area of MIA, near the corner of NW 62nd Avenue and NW 22nd Street. The rack has six (6) loading positions and is capable of loading Jet-A fuel from bulk storage tanks to tanker trucks of capacities ranging from 2,500 to 17,500 gallons, by submerged fill loading, at ~ 600 gallons per minute.

The equation for estimating loading losses is presented in Chapter 5.2 of US EPA's technical document AP 42, Fifth Edition, Volume I (Equation 1, Page 5.2.4) and is presented as follows:

$$L = 12.46 \times S \times P \times M / T$$

L = loading loss, expressed as lbs/1000 gallons of liquid loaded

12.46 = conversion factor

S = saturation factor - S for Submerged loading at dedicated normal service = 0.6 (Table 5.2-1, AP-42)

P = true vapor pressure as lbs/sq. inch of liquid loaded - P for Jet Kerosene = 0.0146 psi

M = molecular weight of vapors, as lb/lb-mole - M for Jet Kerosene = 130 lbs/lb-mole

T = liquid temperature, as Rankin (460 + °F); T = 460 + 73.65 = 533.65 °R

$$L = 12.46 \times 0.6 \times 0.0146 \times 130 / 533.65$$

$$L = 0.0266 \text{ lbs/1000 gal}$$

The 2011 total fuel throughput (gallons) at the Loading Racks was:

249,083,617

For the total gallons of fuel loaded at the South and West Cargo Loading Racks, the annual emissions may be estimated by using the above-calculated emission factor as follows:

VOC Annual Emissions = L x Throughput (gal/yr) / 1,000 =	6,622.99	lbs/yr
	18.15	lbs/day
	3.31	TPY

HAP Annual Emissions = VOC Emissions x 4% =	264.92	lbs/yr
	0.73	lbs/day
	0.13	TPY

The 2011 ozone season (Jun - Aug) fuel throughput (gallons) at the Loading Racks was:

58,008,464

For the ozone season gallons of fuel loaded at the South and West Cargo Loading Racks as indicated above, the annual emissions may be estimated by using the above-calculated emission factor as follows:

VOC Ozone Season Emissions = L x Throughput (gal/yr) / 1,000 =	1,542.41	lbs/yr
	16.77	lbs/day
	0.77	TPY

HAP Ozone Season Emissions = VOC Emissions x 4% =	61.70	lbs/yr
	0.67	lbs/day
	0.03	TPY

Emissions are based on the actual 2011 fuel throughput records compiled and provided by Allied Aviation.

HAP emissions are based on a maximum of 4% total HAPs (ethylbenzene and naphthalene) pursuant to the Jet-A fuel MSDS.