



**EPA Office of Compliance Sector Notebook Project**

**Profile of the Rubber and Plastic Industry**

**2<sup>nd</sup> Edition**

**Chapters VII., VIII. and IX.**

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**VII. COMPLIANCE AND ENFORCEMENT PROFILE***Background*

Until recently, EPA has focused much of its attention on ensuring compliance with specific environmental statutes. This approach allows the Agency to track compliance with the CAA, the RCRA, the CWA, and other environmental statutes. Within the last several years, the Agency has begun to supplement single-media compliance indicators with facility-specific, multimedia indicators of compliance. In doing so, EPA is in a better position to track compliance with all statutes at the facility level, and within specific industrial sectors.

A major step in building the capacity to compile multimedia data for industrial sectors was EPA's creation of the Integrated Data for Enforcement Analysis (IDEA) system. IDEA has the capacity to "read into" the Agency's single-media databases, extract compliance records, and match the records to individual facilities. The IDEA system can match Air, Water, Waste, Toxics/Pesticides/EPCRA, TRI, and Enforcement Docket records for a given facility, and generate a list of historical permit, inspection, and enforcement activity. IDEA also has the capability to analyze data by geographic area and corporate holder. As the capacity to generate multimedia compliance data improves, EPA will make available more in-depth compliance and enforcement information. Additionally, sector-specific measures of success for compliance assistance efforts are under development.

*Compliance and Enforcement Profile Description*

This section uses inspection, violation, and enforcement data from the IDEA system to present the historical compliance and enforcement activity of the RMPP sector. Compliance and enforcement records from EPA's data systems are compiled to the facility level using the Facility Registry System's (FRS) Master Source ID, which links records from virtually any of EPA's data systems to a facility record. For each facility (i.e., Master Source ID), the Industry Sector Notebooks analysis uses the facility-level SIC code that is designated by IDEA, which can be described as follows:

1. If the facility reports to TRI, then the designated SIC code is the primary SIC code reported in the most recent TRI reporting year.
2. If the facility does not report to TRI, the first SIC codes from all linked AIRS Facility Subsystem (AFS), Permit Compliance System (PCS), RCRAInfo, and BIS ID/permits are assembled. If more than one permit/ID exists for a particular program, then only one record from that data system is used. The SIC code that occurs most often, if there is one, becomes the designated SIC code.
3. If the facility does not report to TRI and no SIC code occurs more often than others, the designated SIC code is chosen from the linked programs in the following order: AFS, PCS, BIS, RRR, National Compliance Database (NCDB), DCK. If more than one permit/ID exists for a particular program, then only one record from that data system is used.

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Note that EPA does not attempt to define the actual number of facilities that fall within each sector. Instead, the information presented in this section reflects the records of a subset of facilities within the sector that are well defined within EPA databases.

As a check on the relative size of the full sector universe, most notebooks contain an estimated number of facilities within the sector according to the Bureau of Census (See Section II). With sectors dominated by small businesses, such as metal finishers and printers, the reporting universe within the EPA databases might be small compared to Census data. However, the facilities selected for inclusion in this data analysis section should be consistent with this sector's general make-up.

Following this introduction is a list defining each data column presented within this section. These values represent a retrospective summary of inspections or enforcement actions, and solely reflect EPA, state, and local compliance assurance activity that have been entered into EPA databases. To identify any changes in trends, EPA ran two data queries, one for the past five calendar years (February 1999 to February 2004) and the other for the most recent 24-month period (February 2002 to February 2004). The five-year analysis gives an average level of activity for that period for comparison to the more recent activity.

Because most inspections focus on single-media requirements, the data queries presented in this section are taken from single media databases. These databases do not provide data on whether inspections are state/local- or EPA-led. However, the table breaking down the universe of violations does provide a general measure of the EPA's and states' efforts within each media program. The presented data illustrate the variations across Regions for certain sectors.<sup>2</sup> This variation may be attributable to state/local data entry variations, specific geographic concentrations, proximity to population centers, sensitive ecosystems, highly toxic chemicals used in production, or historical noncompliance. Therefore, these data do not rank regional performance or necessarily reflect which regions may have the most compliance problems.

This section contains five tables which summarize enforcement and compliance activities for the RMPP and selected industries. Table 16 looks exclusively at the RMPP industry for the past 5 years. Tables 17 and 18 look at the RMPP and selected industries for the past 5 and 2 year periods respectively. Tables 17 and 18 look at the RMPP and selected industries for the past 5 and 2 year periods respectively based on statutes. Following this introduction is a list defining each column in the tables presented in this section. The data in these tables solely reflect EPA, state, and local compliance assurance activity data that have been entered into EPA databases.

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<sup>2</sup> EPA Regions include the following states: I (CT, MA, ME, RI, NH, VT); II (NJ, NY, PR, VI); III (DC, DE, MD, PA, VA, WV); IV (AL, FL, GA, KY, MS, NC, SC, TN); V (IL, IN, MI, MN, OH, WI); VI (AR, LA, NM, OK, TX); VII (IA, KS, MO, NE); VIII (CO, MT, ND, SD, UT, WY); IX (AZ, CA, HI, NV, Pacific Trust Territories); X (AK, ID, OR, WA).

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*Compliance and Enforcement Data Definitions**General Definitions*

**Facility Registry System (FRS)** -- this system assigns a common Master Source ID to EPA single-media permit records. The Master Source ID allows EPA to compile and review all permit, compliance, enforcement, and pollutant release data for any given regulated facility.

**Integrated Data for Enforcement Analysis (IDEA)** -- is a data integration system that can retrieve information from the major EPA program office databases. IDEA uses the FRS-maintained Master Source ID identification number to "glue together" separate data records from EPA's databases. This is done to create a "master list" of data records for any given facility. Some of the data systems accessible through IDEA are: Air Facility Indexing and Retrieval System, PCS, RCRAInfo (Resource Conservation and Recovery Information System, Office of Solid Waste), NCDB, CERCLIS (Comprehensive Environmental and Liability Information System, Superfund), and TRIS (Toxic Release Inventory System). IDEA also contains information from outside sources such as Dun and Bradstreet and OSHA. Most data queries displayed in notebook sections IV and VII were conducted using IDEA.

*Data Table Column Heading Definitions*

**Facilities in Search** -- based on the number of the FRS-maintained Master Source IDs that were designated to the listed SIC code range. The SIC code range selected for each search is defined by each notebook's selected SIC code coverage described in Section II (Tables 16-20).

**Facilities Inspected** -- the number of EPA and state agency inspections for the facilities in this data search. These values show what percentage of the facility universe is inspected in a 24- or 60-month period (Table 16-20).

**Number of Inspections** -- the total number of inspections conducted in this sector. An inspection is counted each time it is entered into a single media database (Tables 16-20).

**Average Number of Months Between Inspections** -- an average length of time, in months, between compliance inspections at a facility within the defined universe (Tables 16-17).

**Facilities with One or More Enforcement Actions** -- the number of facilities that were subject to at least one enforcement action within the defined time period. This category is broken down further into federal and state actions. Data are obtained for administrative, civil/judicial, and criminal enforcement actions. Administrative actions include Notices of Violation (NOVs). A facility with multiple enforcement actions is only counted once in this column (facility with three enforcement actions counts as one). All percentages that appear are referenced to the number of facilities inspected (Tables 16-18).

**Total Enforcement Actions** -- the total number of enforcement actions identified for an industrial sector across all environmental statutes. A facility with multiple enforcement actions is counted multiple times (e.g., a facility with three enforcement actions counts as three) (Tables 16-18).

**Percentage of State Led Actions** -- percentage of the total enforcement actions taken by state and local environmental agencies. Varying levels state use of EPA data systems may limit the volume of actions accorded state enforcement activity. Some states extensively report enforcement activities to EPA data systems, while other states may use their own data systems (Tables 16-18).

**Percentage of Federal Led Actions** -- percentage of the total enforcement actions taken by EPA, including referrals from state agencies. Many of these actions result from coordinated or joint state/federal efforts (Table 16-18).

**Enforcement-to-Inspection Ratio** -- how often enforcement actions result from inspections. This value is a ratio of enforcement actions to inspections, and is presented for comparative purposes only. This measure simply indicates historically how many enforcement actions can be attributed to inspection activity. Reported inspections and enforcement actions under the CWA (PCS), CAA (AFS), and RCRA are included in this ratio. Inspections and actions from the TSCA/FIFRA/EPCRA database are not factored into this ratio because most of the actions taken under these programs are not the result of facility inspections. This ratio does not account for enforcement actions arising from noninspection compliance monitoring activities (e.g., self-reported water discharges) that can result in enforcement action within the CAA, CWA and RCRA (Tables 16-18).

**Facilities with One or More Violations Identified** -- the percentage of inspected facilities having a violation identified in one of the following data categories: In Violation or Significant Violation Status (CAA); Reportable Noncompliance, Current Year Noncompliance, Significant Noncompliance (CWA); Noncompliance and Significant Noncompliance (FIFRA, TSCA, and EPCRA); and Unresolved Violation and Unresolved High Priority Violation (RCRA). The values presented in this column reflect the extent of noncompliance within the measured time frame, but not the severity of the noncompliance. Percentages within this column can exceed 100 percent because facilities can be in violation status without being inspected. Violation status may be a precursor to an enforcement action, but does not necessarily indicate that an enforcement action will occur (Table 18).

**Media Breakdown of Enforcement Actions and Inspections** -- four columns identify the proportion of total inspections and enforcement actions within EPA Air, Water, Waste, and TSCA/FIFRA/EPCRA databases. Each column is a percentage of either the "Total Inspections," or the "Total Actions" column (Tables 19-20).

## VII.A. The RMPP Industry Compliance History (1999 to 2004)

Table 16 provides a Regional breakdown of the five-year enforcement and compliance activities for the RMPP industry. Regions IV and V conducted approximately 60 percent of the inspections of rubber and miscellaneous plastics products manufacturing facilities

performed in the United States over the past five years. This large percentage is due to the concentration of rubber and miscellaneous plastics products facilities in these areas.

**VII.B. Comparison of Enforcement Activity Between Selected Industries (1999 to 2004)**

Tables 17 through 20 contain summaries of the two- and five-year enforcement and compliance activities for the RMPP industry, as well as for other selected industries. As indicated in Tables 17 and 18, the RMPP industry has an average enforcement-to-inspection ratio (9 percent) when compared to other industries. Of the 9,231 inspections conducted at 3,821 RMPP manufacturing facilities over a five-year period, 787 (9 percent) resulted in enforcement actions. Approximately 10 percent of inspections in the manufacturing sector as a whole resulted in enforcement actions.

**Table 16: Five-Year Enforcement and Compliance Summary for the Rubber and Plastics Industry (1999 - 2004)**

A	B	C	D	E	F	G	H	I	J
Rubber and Plastic (SIC Code 30)	Facilities in Search	Facilities Inspected	Number of Inspections	Average Number of Months Between Inspections	Facilities with 1 or More Enforcement Action	Total Enforcement Actions	Percentage of State-Led Actions	Percentage of Federal-Led Actions	Enforcement-to-Inspection Ratio
Region I	214	121	339	38	31	42	76%	24%	0.12
Region II	278	140	366	46	46	84	86%	14%	0.23
Region III	379	271	1533	15	38	61	92%	8%	0.04
Region IV	979	622	3180	18	120	227	94%	6%	0.07
Region V	1,000	570	1688	36	106	145	91%	9%	0.09
Region VI	309	182	667	28	57	93	100%	0%	0.14
Region VII	261	158	609	26	27	49	82%	18%	0.08
Region VIII	64	46	180	21	3	7	100%	0%	0.04
Region IX	219	101	371	35	43	55	69%	31%	0.15
Region X	118	81	298	24	10	24	96%	4%	0.08
Total/Average	3,821	2,292	9,231	287	481	787	90%	10%	0.09

**Table 17: Five-Year Enforcement and Compliance Summary for Selected Industries (1999 - 2004)**

Sector	Facilities In Search	Facilities Inspected	Number of Inspections	Average Number of Months Between Inspections	Facilities with 1 or More Enforcement Actions	Total Enforcement Actions	Percentage of State-Led Actions	Percentage of Federal-Led Actions	Enforcement-to-Inspection Ratio
<b>Rubber and Plastic</b>	<b>3,823</b>	<b>2,294</b>	<b>9,239</b>	<b>25</b>	<b>481</b>	<b>787</b>	<b>90%</b>	<b>10%</b>	<b>0.09</b>
Aerospace	764	526	2,704	17	246	238	65%	35%	0.09
Ag Chem Pesticide & Fertilizer	585	345	2,123	17	138	107	57%	43%	0.05
Ag Crop Production	131	69	165	48	12	7	86%	14%	0.04
Ag Livestock Production	53	17	58	55	14	28	11%	89%	0.48
Air Transportation	428	211	619	41	80	62	71%	29%	0.1
Dry Cleaning	3,345	1,620	2,944	68	232	178	92%	8%	0.06
Electronics & Computer	1,852	906	2,486	45	286	196	75%	25%	0.08
Fossil Fuel Elec Power Gen	3,520	2,543	18,758	11	1,170	1,582	78%	22%	0.08
Ground Transportation	4,970	3,338	13,612	22	1,084	880	96%	4%	0.06
Healthcare	1,798	1,187	3,953	27	195	343	96%	4%	0.09
Inorganic Chemical	1,007	629	5,291	11	352	414	79%	21%	0.08
Iron and Steel	683	480	6,060	7	312	536	78%	22%	0.09
Lumber & Wood Products	3,038	2,045	10,728	17	872	814	85%	16%	0.08
Metal Casting	1,346	797	3,549	23	348	340	79%	21%	0.1
Metal Fabrication	8,279	5,092	16,568	30	2,138	1,716	76%	24%	0.1
Metal Mining	281	183	980	17	70	71	85%	16%	0.07
Motor Vehicle Assembly	1,886	1,211	5,531	20	500	448	77%	23%	0.08
Non-Fuel, Non-Metal Mining	3,778	2,005	9,291	24	522	524	95%	6%	0.06
Nonferrous Metals	531	327	2,968	11	242	395	88%	12%	0.13
Oil & Gas Extraction	2,783	1,681	6,371	26	1,120	949	96%	4%	0.15
Organic Chemical	1,050	787	8,483	7	558	846	73%	27%	0.1

**Table 17: Five-Year Enforcement and Compliance Summary for Selected Industries (1999 - 2004) (Continued)**

Sector	Facilities In Search	Facilities Inspected	Number of Inspections	Average Number of Months Between Inspections	Facilities with 1 or More Enforcement Actions	Total Enforcement Actions	Percentage of State-Led Actions	Percentage of Federal-Led Actions	Enforcement-to-Inspection Ratio
Petroleum Refining	438	297	5,405	5	352	1,335	69%	31%	0.25
Pharmaceutical	572	414	2,108	16	174	199	84%	16%	0.09
Plastic Resins & Fibers	709	502	4,637	9	344	444	85%	15%	0.1
Printing	2,384	1,460	4,913	29	476	435	90%	10%	0.09
Pulp and Paper	566	467	5,830	6	336	498	90%	10%	0.09
Shipbuilding & Repair	235	168	870	16	96	83	81%	19%	0.1
Stone Clay Glass&Concrete	3,388	2,013	12,190	17	876	930	89%	11%	0.08
Textiles	1,226	814	3,859	19	304	310	87%	13%	0.08
Water Transportation	269	158	384	42	40	36	89%	11%	0.09
Wood Furniture & Fixtures	1,652	1,047	5,515	18	440	382	89%	12%	0.07

**Table 18: Two-Year Enforcement and Compliance Summary for Selected Industries (2002 - 2004)**

Sector	Facilities In Search	Facilities Inspected	Number of Inspections	Facilities with 1 or More Violations		Facilities with 1 or More Enforcement Actions		Total Enforcement Actions	Enforcement-to-Inspection- Ratio
				Number	Percentage of Inspected Facilities <sup>1</sup>	Number	Percentage of Inspected Facilities <sup>1</sup>		
<b>Rubber and Plastic</b>	<b>3,823</b>	<b>1,494</b>	<b>3,499</b>	<b>618</b>	<b>41%</b>	<b>241</b>	<b>16%</b>	<b>339</b>	<b>0.1</b>
Aerospace	764	338	974	167	49%	82	24%	70	0.07
Ag Chem Pesticide & Fertilizer	585	192	626	68	35%	62	32%	41	0.07
Ag Crop Production	131	37	64	12	32%	10	27%	6	0.09
Ag Livestock Production	53	4	5	5	125%	10	250%	20	4
Air Transportation	428	118	226	52	44%	28	24%	18	0.08
Dry Cleaning	3,345	687	1,038	269	39%	120	17%	79	0.08
Electronics & Computer	1,852	431	806	279	65%	96	22%	63	0.08
Fossil Fuel Elec Power Gen	3,520	2,021	7,011	492	24%	580	29%	607	0.09
Ground Transportation	4,970	2,195	4,879	452	21%	592	27%	418	0.09
Healthcare	1,798	743	1,561	266	36%	121	16%	200	0.13
Inorganic Chemical	1,007	414	1,651	189	46%	170	41%	168	0.1
Iron and Steel	683	350	1,505	209	60%	146	42%	212	0.14
Lumber & Wood Products	3,038	1,399	3,647	557	40%	404	29%	352	0.1
Metal Casting	1,346	518	1,149	274	53%	160	31%	120	0.1
Metal Fabrication	8,279	2,815	5,884	1599	57%	960	34%	683	0.12
Metal Mining	281	128	320	26	20%	40	31%	33	0.1
Motor Vehicle Assembly	1,886	797	2,026	407	51%	282	35%	207	0.1

**Table 18: Two-Year Enforcement and Compliance Summary for Selected Industries (2002 - 2004) (Continued)**

Sector	Facilities In Search	Facilities Inspected	Number of Inspections	Facilities with 1 or More Violations		Facilities with 1 or More Enforcement Actions		Total Enforcement Actions	Enforcement-to-Inspection- Ratio
				Number	Percentage of Inspected Facilities <sup>1</sup>	Number	Percentage of Inspected Facilities <sup>1</sup>		
Non-Fuel, Non-Metal Mining	3,778	1,113	2,850	334	30%	220	20%	172	0.06
Nonferrous Metals	531	215	875	132	61%	114	53%	129	0.15
Oil & Gas Extraction	2,783	1,048	2,171	291	28%	556	53%	414	0.19
Organic Chemical	1,050	537	2,729	292	54%	308	57%	359	0.13
Petroleum Refining	438	224	1,409	147	66%	224	100%	502	0.36
Pharmaceutical	572	276	784	118	43%	82	30%	85	0.11
Plastic Resins & Fibers	709	358	1,514	169	47%	176	49%	187	0.12
Printing	2,384	865	1,829	337	39%	262	30%	193	0.11
Pulp and Paper	566	379	1,856	125	33%	166	44%	168	0.09
Shipbuilding & Repair	235	106	275	50	47%	44	42%	31	0.11
Stone Clay Glass&Concrete	3,388	1,390	4,123	473	34%	432	31%	369	0.09
Textiles	1,226	545	1,378	175	32%	156	29%	128	0.09
Water Transportation	269	76	122	16	21%	20	26%	17	0.14
Wood Furniture & Fixtures	1,652	693	1,954	311	45%	198	29%	162	0.08

<sup>1</sup>Percentages are based on the number of facilities inspected. Percentages can exceed 100% because violations and enforcement actions can occur without a facility inspection.

**Table 19: Five-Year Inspection and Enforcement Summary by Statute for Selected Industries (1999 - 2004)**

Sector	Facilities In Search	Facilities Inspected	Number of Total Inspections	Total Enforcement Actions	Clean Air Act		Clean Water Act		RCRA		FIFRA/TSCA/EPCRA/Other	
					% of Total Inspections	% of Total Enforcement Actions	% of Total Inspections	% of Total Enforcement Actions	% of Total Inspections	% of Total Enforcement Actions	% of Total Inspections	% of Total Enforcement Actions
<b>Rubber and Plastic</b>	<b>3,823</b>	<b>2,294</b>	<b>9,239</b>	<b>787</b>	<b>71%</b>	<b>73%</b>	<b>1%</b>	<b>0%</b>	<b>27%</b>	<b>23%</b>	<b>1%</b>	<b>5%</b>
Aerospace	764	526	2,704	238	52%	43%	3%	3%	44%	51%	0%	3%
Ag Chem Pesticide & Fertilizer	585	345	2,123	107	55%	34%	12%	8%	27%	31%	6%	27%
Ag Crop Production	131	69	165	7	50%	71%	0%	0%	46%	29%	4%	0%
Ag Livestock Production	53	17	58	28	53%	89%	0%	7%	47%	0%	0%	4%
Air Transportation	428	211	619	62	38%	23%	1%	2%	61%	74%	0%	2%
Dry Cleaning	3,345	1,620	2,944	178	26%	35%	0%	0%	74%	65%	0%	0%
Electronics & Computer	1,852	906	2,486	196	31%	14%	4%	5%	64%	67%	1%	15%
Fossil Fuel Elec Power Gen	3,520	2,543	18,758	1,582	75%	88%	18%	8%	6%	3%	0%	1%
Ground Transportation	4,970	3,338	13,612	880	78%	76%	0%	1%	21%	23%	0%	1%
Healthcare	1,798	1,187	3,953	343	78%	82%	0%	2%	21%	16%	1%	1%
Inorganic Chemical	1,007	629	5,291	414	48%	54%	13%	10%	37%	31%	1%	6%
Iron and Steel	683	480	6,060	536	61%	67%	13%	10%	26%	20%	0%	3%
Lumber & Wood Products	3,038	2,045	10,728	814	75%	76%	1%	0%	24%	23%	1%	1%
Metal Casting	1,346	797	3,549	340	60%	59%	3%	2%	36%	33%	1%	6%
Metal Fabrication	8,279	5,092	16,568	1,716	45%	46%	2%	1%	52%	46%	1%	7%
Metal Mining	281	183	980	71	56%	52%	28%	39%	15%	7%	1%	1%
Motor Vehicle Assembly	1,886	1,211	5,531	448	60%	56%	1%	1%	38%	40%	0%	3%
Non-Fuel, Non-Metal Mining	3,778	2,005	9,291	524	97%	99%	1%	0%	2%	1%	0%	0%
Nonferrous Metals	531	327	2,968	395	64%	70%	9%	5%	27%	22%	0%	2%
Oil & Gas Extraction	2,783	1,681	6,371	949	97%	98%	0%	1%	3%	2%	0%	0%
Organic Chemical	1,050	787	8,483	846	47%	55%	12%	13%	39%	28%	2%	5%

**Table 19: Five-Year Inspection and Enforcement Summary by Statute for Selected Industries (1999 - 2004) (Continued)**

Sector	Facilities In Search	Facilities Inspected	Number of Total Inspections	Total Enforcement Actions	Clean Air Act		Clean Water Act		RCRA		FIFRA/TSCA/EPCRA/Other	
					% of Total Inspections	% of Total Enforcement Actions	% of Total Inspections	% of Total Enforcement Actions	% of Total Inspections	% of Total Enforcement Actions	% of Total Inspections	% of Total Enforcement Actions
Petroleum Refining	438	297	5,405	1,335	57%	83%	15%	6%	27%	10%	1%	1%
Pharmaceutical	572	414	2,108	199	40%	49%	7%	8%	52%	37%	1%	6%
Plastic Resins & Fibers	709	502	4,637	444	51%	59%	19%	17%	29%	22%	1%	3%
Printing	2,384	1,460	4,913	435	65%	66%	0%	0%	34%	33%	1%	1%
Pulp and Paper	566	467	5,830	498	67%	75%	26%	18%	7%	4%	0%	3%
Shipbuilding & Repair	235	168	870	83	59%	34%	6%	8%	35%	57%	1%	1%
Stone Clay Glass&Concrete	3,388	2,013	12,190	930	85%	87%	1%	1%	13%	10%	1%	2%
Textiles	1,226	814	3,859	310	76%	59%	12%	23%	12%	14%	1%	3%
Water Transportation	269	158	384	36	42%	50%	1%	0%	56%	50%	1%	0%
Wood Furniture & Fixtures	1,652	1,047	5,515	382	76%	75%	0%	1%	23%	23%	0%	2%

**Table 20: Two-Year Inspection and Enforcement Summary by Statute for Selected Industries (2002 - 2004)**

Sector	Facilities In Search	Facilities Inspected	Number of Total Inspections	Total Enforcement Actions	Clean Air Act		Clean Water Act		RCRA		FIFRA/TSCA/EPCRA/Other	
					% of Total Inspections	% of Total Actions	% of Total Inspections	% of Total Actions	% of Total Inspections	% of Total Actions	% of Total Inspections	% of Total Actions
<b>Rubber and Plastic</b>	<b>3,823</b>	<b>1,494</b>	<b>3,499</b>	<b>339</b>	<b>73%</b>	<b>78%</b>	<b>1%</b>	<b>0%</b>	<b>26%</b>	<b>18%</b>	<b>0%</b>	<b>4%</b>
Aerospace	764	338	974	70	47%	61%	4%	0%	49%	39%	0%	0%
Ag Chem Pesticide & Fertilizer	585	192	626	41	51%	42%	14%	5%	31%	27%	4%	27%
Ag Crop Production	131	37	64	6	50%	67%	0%	0%	45%	33%	5%	0%
Ag Livestock Production	53	4	5	20	80%	95%	0%	5%	20%	0%	0%	0%
Air Transportation	428	118	226	18	43%	17%	1%	0%	57%	78%	0%	6%
Dry Cleaning	3,345	687	1,038	79	23%	60%	0%	0%	77%	41%	0%	0%
Electronics & Computer	1,852	431	806	63	30%	16%	4%	5%	66%	71%	0%	8%
Fossil Fuel Elec Power Gen	3,520	2,021	7,011	607	75%	93%	18%	4%	7%	2%	0%	1%
Ground Transportation	4,970	2,195	4,879	418	79%	87%	1%	1%	21%	12%	0%	0%
Healthcare	1,798	743	1,561	200	80%	87%	0%	1%	20%	12%	0%	1%
Inorganic Chemical	1,007	414	1,651	168	41%	60%	15%	8%	44%	30%	1%	2%
Iron and Steel	683	350	1,505	212	48%	73%	16%	9%	36%	17%	0%	1%
Lumber & Wood Products	3,038	1,399	3,647	352	71%	78%	1%	0%	28%	22%	0%	0%
Metal Casting	1,346	518	1,149	120	52%	62%	3%	1%	44%	32%	1%	4%
Metal Fabrication	8,279	2,815	5,884	683	45%	51%	2%	0%	52%	45%	0%	4%
Metal Mining	281	128	320	33	52%	67%	30%	24%	18%	9%	0%	0%
Motor Vehicle Assembly	1,886	797	2,026	207	57%	55%	2%	1%	41%	43%	0%	1%
Non-Fuel, Non-Metal Mining	3,778	1,113	2,850	172	96%	99%	2%	0%	2%	1%	0%	0%
Nonferrous Metals	531	215	875	129	59%	74%	10%	5%	31%	19%	0%	2%
Oil & Gas Extraction	2,783	1,048	2,171	414	97%	99%	0%	1%	3%	1%	0%	0%
Organic Chemical	1,050	537	2,729	359	44%	65%	14%	10%	42%	22%	0%	3%

**Table 20: Two-Year Inspection and Enforcement Summary by Statute for Selected Industries (2002 - 2004) (Continued)**

Sector	Facilities In Search	Facilities Inspected	Number of Total Inspections	Total Enforcement Actions	Clean Air Act		Clean Water Act		RCRA		FIFRA/TSCA/EPCRA/Other	
					% of Total Inspections	% of Total Actions	% of Total Inspections	% of Total Actions	% of Total Inspections	% of Total Actions	% of Total Inspections	% of Total Actions
Petroleum Refining	438	224	1,409	502	40%	86%	23%	6%	38%	8%	0%	1%
Pharmaceutical	572	276	784	85	43%	55%	7%	8%	49%	32%	1%	5%
Plastic Resins & Fibers	709	358	1,514	187	48%	69%	21%	5%	31%	23%	0%	3%
Printing	2,384	865	1,829	193	66%	0%	0%	0%	34%	0%	0%	0%
Pulp and Paper	566	379	1,856	168	62%	86%	31%	9%	7%	3%	0%	2%
Rubber and Plastic	3,823	1,494	3,499	339	73%	78%	1%	0%	26%	18%	0%	4%
Shipbuilding & Repair	235	106	275	31	56%	52%	6%	0%	37%	45%	1%	3%
Stone Clay Glass&Concrete	3,388	1,390	4,123	369	84%	89%	2%	2%	14%	7%	0%	2%
Textiles	1,226	545	1,378	128	76%	66%	11%	21%	13%	12%	0%	1%
Water Transportation	269	76	122	17	34%	65%	2%	0%	64%	35%	0%	0%
Wood Furniture & Fixtures	1,652	693	1,954	162	78%	81%	0%	1%	22%	16%	0%	2%

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**VII.C. Review of Major Legal Actions**

This section discusses major legal cases and pending litigation within the rubber and plastics products industry as well as supplemental environmental projects (SEPs) involving rubber and plastics products facilities. Detailed information regarding major cases or pending litigation is available from the Office of Regulatory Enforcement.

**VII.C.1. Review of Major Cases**

As indicated in EPA's ICIS EZ Search, several enforcement cases were resolved between 1999 and 2004 for the RMPP manufacturing industry. Of these actions, 23 involved violations of EPCRA; 7 involved violations of CERCLA; 4 involved violations of TSCA, CWA, and FIFRA; 3 involved violations of CAA; and 1 involved violations of RCRA. A majority of the cases were brought against plastics products manufacturers. The cases involving the rubber products manufacturing industry included discharging water without an NPDES permit, failure to file Form R, and failure to register a PCB transformer.

Five of the six enforcement actions resulted in the assessment of a penalty. Penalties ranged from \$100 to \$89,050, and, in several cases, the defendant was ordered to spend additional money to improve the processes or technologies and to increase future compliance. For example, in the matter of Associated Plastics, Inc. (1999), the company paid a \$10,367 penalty and spent approximately \$162,000 on SEPs. The average penalty per case was approximately \$21,000 and SEPs were required in six of the cases. In another case, BP Amoco Chemical Company (2001) was required to provide training for LEPC. Table 21 lists recent SEPs for this industry.

The case of U.S. et al. v. Production Plated Plastic, Inc. et al. (1992) is considered significant by EPA because the court held a corporate officer and the owner of the company personally liable.

**VII.C.2. Supplementary Environmental Projects**

SEPs are compliance agreements that reduce a facility's stipulated penalty in return for an environmental project that exceeds the value of the reduction. Often, these projects fund pollution prevention activities that can significantly reduce the future pollutant loadings of a facility.

The EPA's ICIS EZ Search provides information on the number and type of SEPs for a sector. Table 21 contains a sample of the SEPs addressing the RMPP industry. The information contained in Table 21 is not comprehensive and provides only a sample of the types of SEPs developed for the RMPP industry.

**Table 21: Supplemental Environmental Projects in RMPP Facilities (SIC Code 30)**

General Information				Violation Information			Supplemental Environmental Project Information	
FY	Docket #	Company Name	State/Region	Type	Assessed Penalty	SEP Cost to Company	SEP Category	SEP Description
2002	06-2001-3318	BP Amoco Chemical Company	TX	CERCLA 103	\$2,000	\$32,000	Emergency Planning and Preparedness	Sponsorship of training for LEPC.
2000	09-1999-0103	Fiberglass Representatives Inc.	CA	EPCRA 313	\$100	\$400	Environmental Compliance Promotion	Conduct a sector-based compliance outreach program.
1999	09-1999-0024	Associated Plastics Inc.	CA	EPCRA 313	\$10,367	\$162,150		
1999	05-1999-0208	FOAMEX LP	IN	CERCLA 103	\$3,867	\$14,800	Pollution Prevention/ Equipment-Technology Modification	
1999	06-1999-0747	BP Amoco Chemical Company	AK	CERCLA 103	\$2,000	\$12,000	Emergency Planning and Preparedness	Donation of equipment to LEPC and donation to a conference
1998	06-1998-0663	Interplastics Corporation	OK	EPCRA 312	\$1,300	\$6,000	Emergency Planning and Preparedness	Donate equipment and assistance to the LEPC and donation to a conference.
1997	06-1997-0702	Dynagen Inc.	TX	CERCLA 103	\$4,000	\$16,000	Emergency Planning and Preparedness	Donation of equipment to LEPC and donation to a conference. Must provide training and purchase alarms.

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**VIII. COMPLIANCE ACTIVITIES AND INITIATIVES**

This section highlights the activities undertaken by the RMPP sector and public agencies to voluntarily improve the sector's environmental performance. These activities include those independently initiated by industrial trade associations. This section lists and describes national and regional trade associations.

**VIII.A. Sector-Related Environmental Programs and Activities***Bridgestone/Firestone Wildlife Habitat Projects*

Bridgestone/Firestone donated a 10,000-acre natural treasure to the state of Tennessee, officially designated the Bridgestone/Firestone Centennial Wilderness. This area includes over 12 miles of the Caney Fork River Gorge in White and Van Buren Counties.

Other projects include partnering with the Wildlife Habitat Council to establish wildlife habitat projects at Bridgestone/Firestone manufacturing plants. These land conservation and grounds management initiatives are currently promoting environmental awareness at the Oklahoma City, OK and Warren County, TN facilities as well as their surrounding communities.

*Gillette Environmental Leadership Program (ELP) Project*

The objective of the Gillette ELP is to develop and implement a third-party compliance and management systems audit and verification process. The project will involve developing environmental compliance and environmental management systems audit protocol criteria that can be adopted and easily implemented by other facilities to assess compliance with relevant regulations. The three Gillette facilities that are participating are: South Boston Manufacturing Center, blade and razor manufacturing; North Chicago Manufacturing Center, batch chemical manufacturing; and Santa Monica, CA, stationary products manufacturing. (Contact: Scott Throwe, (202) 564-7013.)

**VIII.B. EPA Voluntary Programs***Compliance Assistance Clearinghouse*

The National Environmental Compliance Assistance Clearinghouse is a web-based clearinghouse designed to provide quick access to compliance assistance tools, contacts, and planned activities across EPA and other compliance assistance providers. The Clearinghouse also serves as a forum to collaborate and exchange information. The Clearinghouse provides links to compliance assistance activities, tools, or technical assistance that: (1) assist the regulated community in understanding and complying with environmental regulations; or (2) assist compliance assistance providers in helping the regulated community to comply with environmental regulations. The Clearinghouse web site is <http://www.epa.gov/clearinghouse/>.

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*High Production Volume Challenge*

As part of EPA's Chemical Right-to-Know Initiative, chemical producers and importers have been invited to provide basic toxicity information voluntarily on their high production volume (HPV) chemicals. HPV chemicals are those chemicals that are produced in or imported to the United States in amounts over 1 million pounds per year. The information generated through the Voluntary Challenge Program is available to the public through the EPA web site, which is provided below.

Chemical companies that participate in the voluntary program make commitments identifying the chemicals they will adopt and test, and the schedule of which chemicals they will begin to test in each year of the program. Following the guidance established by EPA, participating companies will assess the adequacy of existing data; design and submit test plans; provide test results as they are generated; and prepare summaries of the data characterizing each chemical.

The voluntary program uses the same tests, testing protocols, and basic information summary formats used by the Screening Information Data Set (SIDS) program. SIDS is a cooperative, international effort to secure basic toxicity information on HPV chemicals worldwide. Information prepared for this U.S. domestic program will be acceptable in the international effort as well. As of 2002, the program has been very successful; 403 companies have committed to providing health and environmental data on 2,011 chemicals. For more information, see the web site at <http://www.epa.gov/opptintr/chemrtk/>.

*Chem Right to Know - Voluntary Children's Chemical Evaluation Program (VCCEP)*

The VCCEP makes information available that helps the public better understand the potential health risks to children associated with certain chemical exposures. VCCEP's goal is to ensure that adequate data are publicly available to assess the special impact that industrial chemicals may have on children.

EPA has identified industrial/commercial chemicals to which children have a high likelihood of exposure based on biomonitoring data, and has designed VCCEP to develop the information needed to assess the impact on children. The hazard, exposure, and risk assessments for four chemicals were submitted to EPA and underwent peer consultations in fiscal year 2003. The outcomes of the peer consultations are expected to conclude whether data are sufficient to adequately characterize the risks to children or whether additional data are necessary. For more information, see the web site at <http://www.epa.gov/chemrtk/vccep/>.

*Green Suppliers Network (GSN)*

GSN is partnered with the Department of Commerce and the National Institute of Standards and Technology (NIST) Manufacturing Extension Partnership (MEP) to provide direct technical assistance to suppliers. GSN offers a NIST technical assistance package of 'Lean Manufacturing' and 'Pollution Prevention' practices directly to manufacturer's suppliers through on-site engagements with supplier facilities.

GSN has actively engaged other EPA, state and other federal agencies' voluntary programs to provide training for NIST MEP centers and additional implementation resources for suppliers.

GSN looks at identified opportunities such as lowering scrap and rework, changing to a more environmentally benign die lubricant, and reduction in disposal of waste to provide significant environmental impact reductions. Suppliers agree to report back to EPA and their manufacturer on the progress of implementing the opportunities identified through the GSN review. For more information, see the web site at <http://www.epa.gov/p2/programs/gsn.htm>.

#### *Design for the Environment (DfE) Program*

EPA's DfE Program works directly with industry sectors to compare human health and environmental risks, taking into consideration traditional business factors of cost and performance. The DfE Program works as a catalyst for lasting change, providing a better understanding of the relative risks of chemicals that allows businesses to move to cleaner technologies and safer chemical alternatives – protecting workers, consumers, and the environment. Rather than rely on end-of-pipe controls, DfE encourages pollution prevention, or front-end innovations, through the redesign of formulations, technologies, and management processes. Current and fiscal year 2005 activities are listed below:

**Automotive Refinishing:** EPA is conducting best practices site visits and train-the-trainer workshops to reduce toxic paint emissions in 60,000 auto body shops and neighboring communities. Partner shops reduced emissions by as much as 30 percent, while saving roughly \$4,000 per shop.

**Electronics:** The industry is moving to using lead-free solder, wire, and cable in printed wiring boards (PWBs). Partnership has had substantial impacts on the industry's move toward cleaner technologies for manufacturing PWBs, with significant increase in the use of lead-free surface finishes.

**Formulator:** Formulators are using safer surfactants, solvents, bleaches, and fragrances in detergents, cleaning, floor care, and other products. One partnership eliminated over 340,000 gallons of toxic chemicals, while saving over 100 million gallons of water along with the energy to heat it.

**Industrial Design:** DfE is collaborating with the 15,000 industrial designers to drive choices of materials, finishes, colors, and assemblage of products.

**Integrated Environmental Management Systems:** EPA is developing a template/manual for greening industry.

**Flame Retardants:** Working with furniture and foam manufacturers, DfE is helping to facilitate the transition to safer alternatives.

**Polyurethane Foam:** Building on DfE best practices and safer substitutes, EPA is developing an approach to reduce emissions of diisocyanates, the leading cause of occupational asthma.

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See <http://www.epa.gov/dfe> for more information and other DfE projects.

### *Green Chemistry Program*

Green chemistry is the design of chemical products and processes that are safer to human health and the environment. The environmentally conscious design of chemical products and processes is the central focus of EPA's Green Chemistry Program, a voluntary partnership program with the chemical industry and scientific community. Key program activities include the following:

**Presidential Green Chemistry Challenge:** This program recognizes outstanding accomplishments in green chemistry through an annual awards program in order to demonstrate their scientific, economic, and environmental benefits.

**Green Chemistry Research:** The Green Chemistry Program supports the research, development, and implementation of innovative green chemistry technologies in order to provide industry with scientifically sound and cost-effective alternatives.

**Green Chemistry Curriculum Development:** The Green Chemistry Program supports a variety of educational activities including the development of materials and courses to assist in the training of professional chemists in industry and education of students in academia.

**Scientific Outreach:** The Green Chemistry Program supports a number of outreach projects including organizing and participating in prominent scientific meetings and workshops, publishing in scientific journals and books, and developing and disseminating computational tools and databases.

**International Activities:** While the United States is recognized as the world leader in green chemistry, other countries are becoming increasingly interested and active in the area. The United States continues to coordinate with other countries to promote green chemistry on a global scale.

### *National Environmental Performance Track*

EPA's National Environmental Performance Track Program is designed to motivate and reward top environmental performance. By encouraging a systematic approach to managing environmental responsibilities, taking extra steps to reduce and prevent pollution, and being good corporate neighbors, the program is rewarding companies that strive for environmental excellence. At the same time, many participating companies are finding that they are saving money and improving productivity. (Contact: Performance Track hotline at (888) 339-PTRK or the web site at <http://www.epa.gov/performancetrack/>.)

The rubber industry has 'Charter Members' in Performance Track. Since its inception in June 2000 to the end of December 2003, Performance Track members went beyond legal requirements to reduce:

- Energy use by 3.1 million mmBtus;
- Water use by 775 million gallons;

- 
- Hazardous materials use by 17,996 tons;
  - Solid waste by 176,126 tons;
  - Hazardous waste by 6,558 tons;
  - Emissions of greenhouse gases by 40,193 tons;
  - Emissions of nitrogen oxides (NO<sub>x</sub>) by 2,152 tons;
  - Emissions of sulfur dioxide (SO<sub>2</sub>) by 13,621 tons; and
  - Toxic discharges to water by 6,834 tons.

Members also increased their use of reused and recycled materials by 13,760 tons and preserved or restored 4,485 acres of habitat.

Reference: <http://www.epa.gov/performancetrack/members/PTtemplate/fastfacts.htm>.

### *WasteWi\$e Program*

The WasteWi\$e Program was started in 1994 by EPA's Office of Solid Waste and Emergency Response (OSWER). The program is aimed at reducing municipal solid wastes by promoting waste minimization, recycling collection, and the manufacturing and purchase of recycled products. As of 2001, the program had about 1,175 companies as members, including a number of major corporations. Members agree to identify and implement actions to reduce their solid wastes and must provide EPA with their waste reduction goals along with yearly progress reports. EPA in turn provides technical assistance to member companies and allows the use of the WasteWi\$e logo for promotional purposes. Over 30 chemical companies currently are members of WasteWi\$e. (Contact: Jeff Tumarkin at EPA's OSWER at (703) 308-8686 or [Tumarkin.Jeff@epa.gov](mailto:Tumarkin.Jeff@epa.gov), or the WasteWi\$e Hotline at (800) EPA-WISE ((800) 372-9473) or <http://www.epa.gov/wastewise>.)

### *Project XL*

Project XL, which stands for "eXcellence and Leadership," is a national pilot program that allows state and local governments, businesses and federal facilities to develop with EPA innovative strategies to test better or more cost-effective ways of achieving environmental and public health protection. In exchange, EPA will issue regulatory, program, policy, or procedural flexibilities to conduct the experiment. Under Project XL, private businesses, federal facilities, business sectors, and state and local governments are conducting experiments that address the following eight Project XL selection criteria:

- Produce superior environmental results beyond those that would have been achieved under current and reasonably anticipated future regulations or policies;
- Produce benefits such as cost savings, paperwork reduction, regulatory flexibility, or other types of flexibility that serve as an incentive to both project sponsors and regulators;
- Provide support by stakeholders;
- Achieve innovation/pollution prevention;

- 
- Produce lessons or data that are transferable to other facilities;
  - Demonstrate feasibility;
  - Establish accountability through agreed-upon methods of monitoring, reporting, and evaluations; and
  - Avoid shifting the risk burden (i.e., do not create worker safety or environmental justice problems as a result of the experiment).

By 2001, three chemical companies (Crompton, Eastman Kodak, and PPG) had undertaken projects under Project XL. (For more information, contact Chris Knopes in the Office of Reinvention Programs at (202) 260-9298 or Knopes.Christopher@epa.gov, or the web site at <http://www.epa.gov/projectxl>.)

### *Energy Star®*

In 1991, EPA introduced Green Lights®, a program designed for businesses and organizations to proactively combat pollution by installing energy efficient lighting technologies in their commercial and industrial buildings. In April 1995, Green Lights® expanded into Energy Star® Buildings—a strategy that optimizes whole-building energy-efficiency opportunities. The energy needed to run commercial and industrial buildings in the United States produces 19 percent of U.S. carbon dioxide emissions, 12 percent of NO<sub>x</sub>, and 25 percent of SO<sub>2</sub>, at a cost of \$110 billion a year. If implemented in every U.S. commercial and industrial building, the Energy Star® Buildings upgrade approach could prevent up to 35 percent of the emissions associated with these buildings and cut the nation's energy bill by up to \$25 billion annually.

The more than 7,000 participants include corporations, small businesses, universities, health care facilities, nonprofit organizations, school districts, and federal and local governments. Energy Star® has successfully delivered energy and cost savings across the country, saving businesses, organizations, and consumers more than \$5 billion a year. Over the past decade, Energy Star® has been a driving force behind the more widespread use of such technological innovations as LED traffic lights, efficient fluorescent lighting, power management systems for office equipment, and low standby energy use.

Manufacturers can become partners in Energy Star® by pledging to undertake the following steps:

- Measure, track, and benchmark their organization's energy performance by using tools such as those offered by Energy Star®;
- Develop and implement a plan to improve energy performance in their facilities and operations by adopting the strategy provided by Energy Star®; and

- Educate their staff and the public about their partnership with Energy Star®, and highlight their achievements with the Energy Star label, where available.

(Contact: Energy Star Hotline, (888) STAR-YES ((888) 782-7937) or visit the web site at <http://www.energystar.gov>.)

*National Industrial Competitiveness through Energy, Environment, and Economics (NICE<sup>3</sup>)*

The U.S. Department of Energy administers a grant program called NICE<sup>3</sup>. By providing grants of up to 50 percent of the total project cost, the program encourages industry to reduce industrial waste at its source and become more energy-efficient and cost-competitive through waste minimization efforts. Industry uses the grants to design, test, demonstrate, and assess the feasibility of new processes and/or equipment with the potential to reduce pollution and increase energy efficiency. The program is open to all industries; however, priority is given to proposals from participants in the chemicals, agriculture, aluminum, pulp and paper, glass, metal casting, mining, petroleum, and steel industries. (Contact: DOE's Golden Field Office at (303) 275-4728, or see the web site at <http://www.oit.doe.gov/nice3>.)

*EPA Audit Policy*

EPA encourages companies with multiple facilities to take advantage of the Agency's Audit Policy (Incentives for Self-Policing: Discovery, Disclosure, Correction and Prevention of Violations, 65 FR 19618 (April 11, 2000) ) to conduct audits and develop environmental compliance systems. The Audit Policy eliminates gravity-based penalties for companies that voluntarily discover, promptly disclose, and expeditiously correct violations of federal environmental law. More information on EPA's Audit Policy can be obtained from the web site at: <http://www.epa.gov/Compliance/resources/policies/incentives/auditing/index-old.html>.

*Small Business Compliance Policy*

The Small Business Compliance Policy promotes environmental compliance among small businesses (those with 100 or fewer employees) by providing incentives to discover and correct environmental problems. EPA will eliminate or significantly reduce penalties for small businesses that voluntarily discover violations of environmental law and promptly disclose and correct them. A wide range of resources is available to help small businesses learn about environmental compliance and take advantage of the Small Business Compliance Policy. These resources include training, checklists, compliance guides, mentoring programs, and other activities.

Businesses can find more information through links on the web site at: <http://www.epa.gov/smallbusiness/>.

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**VIII.C. Trade Association-/Industry-Sponsored Activities**

To determine the activities the sector is to improve undertaking its environmental performance, EPA contacted major trade associations and corporations. There are a significant number of activities occurring in the RMPP. The Rubber Manufacturers Association (RMA) has projects completed or underway that are looking at issues such as stormwater, emissions factors, scrap tires, and leaching potentials of rubber products. The SPI has started an incentive program called OCS to help plastics products manufacturers comply with the EPA-regulated problem of plastic resin pellet loss.

**VIII.C.1. Environmental Programs***Stormwater*

EPA has identified stormwater runoff as one of the leading causes of the deterioration of water quality in rivers, lakes, streams, wetlands, and estuaries. As a result, EPA promulgated regulations on November 16, 1990 that required permit applications for stormwater discharges from selected municipal and industrial point sources. In 1990, the RMA sponsored a group stormwater application project that involved over 275 individual facilities. Stormwater sampling indicated that the rubber products manufacturing facilities have minimal stormwater pollution concerns. The draft NPDES permits published in the *Federal Register* on November 19, 1993 for the rubber industry reflected this "minimal concern" by proposing the following provisions:

- No specific numerical effluent limitations are needed;
- Best management practices (BMP) are effective at reducing pollutants; and
- Quarterly visual observation of stormwater discharges will help minimize pollution.

Many states are not waiting for EPA to finalize the permitting requirements and have requested that plants obtain local permits with reporting and chemical analysis provisions.

Within the miscellaneous plastics products industry, SPI started the incentive program OCS to promote efforts to reduce plastic resin pellet loss. SPI implements the program informally, by requiring all participating facilities to encourage spill minimization, prompt and thorough cleanup of spills, and proper pellet disposal. The participating manufacturers sign a pledge that says they will try to prevent pellet loss.

*Air Emissions*

In 1994 and 1995, RMA conducted an extensive air emission sampling project on the various manufacturing processes in the rubber industry. The purpose of this project was to develop accurate air emission factors for the rubber products manufacturing industry. Today, up-to-date emission factors are available for this industry. Six processes common to both tire and general rubber products plants (mixing, milling, extruding, calendaring, vulcanizing, and

grinding) were the subjects of this project. Twenty-six rubber compounds/mixtures were studied in this project. For each manufacturing process and compound, emission rates were developed as pounds of pollutant emitted per pound of rubber (or product) processed, except for grinding, which is expressed in terms of pounds of pollutant per pound of rubber ground off.

The RMA initiative resulted in draft emission factors for several rubber processing operations included in the 5th Edition, Volume 1 of the AP-42. Section 4.12 is dedicated to emission factors for the manufacture of rubber products. Many of the processes include:

- Calendering;
- Extrusion;
- Grinding;
- Internal mixing;
- Mixing;
- Autoclave curing;
- Hot air curing; and
- Platen press curing.

Emissions factors are included for this project. This is breaking new ground as this type of testing has never been done on such a scale for the tire and rubber industry. This is the first time that EPA's air program in Research Triangle Park has utilized data from an outside organization like the RMA to compile emissions factor for an industry.

#### *Scrap Tire Disposal*

Scrap tire disposal is another issue being addressed by the RMA. The RMA is working to find uses for scrap tires that are both economically and environmentally sound. The three main themes held by the RMA are reuse, recycle, or recovery. To date, improvements in finding uses for scrap tires have been strong. In 2001, approximately 78 percent of the 281 million scrap tires introduced that year were used in some way. This represents a 50-percent increase in the use of scrap tires used in 1994 and a seven-fold increase in scrap tire usage since 1990.

Using scrap tires as a fuel source is the leading method of utilizing of scrap tires. As of 1999, approximately 40 percent of scrap tires were used in this manner. An average tire releases 12,000 to 15,000 Btu/lb of energy. One 20-pound tire is equivalent to about 25 pounds of coal; shredded tire chips are added to coal as a fuel supplement. Whole tires are used at times as fuel in cement kilns.

Approximately 9 percent of scrap tires are used in civil engineering projects while 7 percent are recycled as other rubber products. Recycled ground rubber is incorporated into new tires, although the recycled content is limited so that tire performance is not compromised. In 2003, approximately 9 percent of the 290 million scrap tires were sent to landfills for disposal. Most landfills will not accept whole tires so scrap tires are usually chipped before being deposited in a landfill.

RMA has concluded that leachate issues from scrap rubber do not pose a concern. In 1989, the RMA conducted an assessment using EPA's proposed TCLP, to determine what levels of chemicals, if any, are leached from representative RMA products. The results of the TCLP analysis showed that none of the products tested, cured or uncured, exceeded proposed TCLP regulatory levels. The RMA also compared the effect of a modification to the TCLP proposed by EPA in 1989 that would eliminate grinding prior to leaching, in effect making TCLP tests of rubber products more representative of disposal practices. The results from tests of ground and unground samples were comparable.

### VIII.C.2. Summary of Trade Associations

#### Rubber Manufacturers Association (RMA)

1400 K Street, N.W.	Members: Approximately 100
Washington, D.C. 20005	Staff: 25
Phone: (202) 682-4800	Budget:
Fax: (202) 682-4854	Contact: Tracey J. Norberg

RMA is the national trade association representing the tire and rubber manufacturing industry. Its members include all 7 major tire manufacturers and approximately 100 companies that manufacture other rubber products, including hoses, belts, seals, gaskets, anti-vibration equipment, and other molded rubber products for industrial and automotive applications. RMA represents its members on policy and technical issues, develops industry standards, compiles industry statistics, and provides educational opportunities for its members. RMA members are active in a variety of committees, which address environmental, safety and health, government affairs, communications, technical and standards, and statistical issues. The web site is located at: <http://www.rma.org/>.

#### Tire Industry Association (TIA)

1532 Pointer Ridge Place	Members: 4,500
Suite E	Staff: 18
Bowie, MD 20716-1883	Budget:
Phone: (800) 876-8372	Contact: Colleen Wood
Fax: (301) 430-7283	

TIA is an international association representing all segments of the tire industry, including those that manufacture, repair, recycle, sell, service, or use new or retreaded tires, and also those suppliers or individuals who furnish equipment, material or services to the industry. TIA was formed by the July 2002 merger of the International Tire & Rubber Association (ITRA) and the Tire Association of North America (TANA).

The TIA produces two publications, *Today's Tire Industry* and *CTS Today*. These are published six times annually. The web site is located at: <http://www.tireindustry.org/about.asp>.

## Tire and Rim Association (TRA)

175 Montrose Avenue, West	Members: 40
Copley, OH 44321	Staff: 3
Phone: (216) 666-8121	Budget:
Fax: (216) 666-8340	Contact: J.F. Pacuit

Founded in 1903, TRA includes manufacturers of tires, rims, wheels, and related parts. TRA establishes standards (primarily dimensional) for the interchanging of tires, rim contours, tubes, valves, and flaps for passenger cars, motorcycles, trucks, buses, airplanes, and for earth-moving, road-building, agricultural, and industrial vehicles. TRA includes a Standards and Technical Advisory Committee. Subcommittees include Agricultural Tire and Rim, Aircraft Tire and Rim, Cycle Tire and Rim, Industrial Tire and Rim, Off-the-Road Tire and Rim, Passenger Car Tire and Rim, Truck-Bus Tire and Rim, and Tube and Valve. TRA also publishes *Engineering Design Information for Aircraft Tires and Rims* (periodic), *Engineering Design Information for Ground Vehicles Tires and Rims* (quarterly), *Tire and Rim Association-Aircraft Year Book*, and *Tire and Rim Association Year Book*. The web site is located at:

<http://www.us-tra.org/traMain.htm>.

## National Tire Dealers and Retreaders Association (NTDRA)

6333 Long Street, Suite 340	Members: 5,000
Shawnee, KS 66216	Staff: 30
Phone: (913) 268-6273	Budget:
Fax: (913) 268-6388	Contact: Don Wilson

Founded in 1920, NTDRA represents independent tire dealers and retreaders. It includes 25 state and 80 local groups. NTDRA publishes *Master Retreader* (bimonthly), *National Tire Dealers and Retreaders Association-Hotline* (bimonthly), *National Tire Dealers and Retreaders Association-Who's Who Membership Directory* (annual), *NTDRA Dealer News* (monthly), and *NTDRA Membergram* (monthly). The web site is located at:

## The Society of the Plastics Industry, Inc. (SPI)

1801 K Street, N.W., Suite 600K	Members: 1,000
Washington, D.C. 20006	Staff: 57
Phone: (202) 974-5200	Budget:
Fax: (202) 296-7005	Contact: Bonnie Limbach

Founded in 1937, SPI represents manufacturers and processors of molded, extruded, fabricated, laminated, calendered, and reinforced plastic; manufacturers of raw materials, machinery, tools, dies, and molds; and testing laboratories. SPI supports research, proposes standards for plastics products, compiles statistics, organizes competitions, and bestows awards. SPI also publishes *Financial and Operating Ratios* (annual); *SPI Link* (weekly); *The Society of the Plastics Industry, Inc. - Labor Survey* (annual); and an *Annual Report* to members. The web site is located at: <http://www.plasticsindustry.org>.

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**Society of Plastic Engineers (SPE)**

14 Fairfield Drive  
P.O. Box 403  
Brookfield, CT 06804-0403  
Phone: (203) 775-0471  
Fax: (203) 775-8490

Members: 37,000  
Staff: 31  
Budget: \$5,000,000  
Contact: Gail Bristol

Founded in 1942, SPE is a professional society of scientists, engineers, educators, students, and others interested in the design, development, production, and utilization of plastic materials, products, and equipment. The SPE awards graduate and undergraduate scholarships ranging from \$1,000 to \$5,000. SPE awards a plaque, gold medal, and \$5,000 in recognition of fundamental contributions to the technology of polymer science and engineering, plus seven other awards of \$2,500 each for achievements in engineering and technology, education, business management, research, production of unique plastics products for consumer and industrial use, and contribution to mankind in the field of plastic. SPE also conducts seminars. Committees within SPE include Award, Credentials, Education, Education Seminar, International Relations, Management Involvement, New Technology, Plastic Education Foundation, Public Interest, Technical Programs, and Technical Volumes. Divisions include Advanced Polymer Composites, Automotive, Blow Molding, Color and Appearance, Decorating, Electrical and Electronics, Engineering Properties and Structure, Extrusion, Injection Molding, Marketing, Medical Plastic, Mold Making and Mold Design, Plastic Analysis, Plastic Recycling, Polymodifiers and Additives, Thermoforming, Thermoplastic Materials and Foams, Thermosetting Molding, and Vinyl Plastic. SPE also publishes the *Journal of Vinyl Technology* (quarterly), *Plastic Engineering* (monthly), *Polymer Composites* (bimonthly), *Polymer Engineering and Science* (semimonthly), and *Preprint Volumes and the Plastic Engineering Series* (books). The web site is located at: <http://www.4spe.org/>.

**Association of Rotational Molders (ARM) International**

2000 Spring Road,  
Suite 511  
Oak Brook, IL 60523  
Phone: (630) 571-0611  
Fax: (630) 571-0616

Members: 435  
Staff: 3  
Budget: \$500,000  
Contact: Charles D. Fredrick

Founded in 1976, ARM represents plastic processors who use the rotational molding process, their suppliers, and overseas molders. ARM's purposes are to increase awareness of roto-molding, exchange technical information, provide education, and standardize production guidelines. ARM conducts research seminars, educational video, and slide programs, maintains a private library, sponsors a product contest, and bestows awards. ARM also offers a membership database. ARM publishes the *ARM Roster* (annual) and the *Roto-Molder Review* (4-6/year). The web site is located at: <http://www.rotomolding.org/>.

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International Association of Plastic Distributors (IAPD)

4707 College Blvd., Suite 105	Members: 450
Leawood, KS 66211-1667	Staff: 6
Phone: (913) 345-1005	Budget: \$825,000
Fax: (913) 345-1006	Contact: Carol K. Wagner

Founded in 1956, IAPD represents distributors of plastic materials, firms that both manufacture and distribute these materials, and manufacturers who sell their products through plastic distributors. The objective of IAPD is to promote proper and efficient distributor involvement in the plastic industry. IAPD maintains liaison with associated organizations, operates a library, bestows awards, and compiles statistics. Publications include the *Membership Directory* (annual), the *IAPD Magazine* (monthly), and computerized data processing manuals, charts, and other materials. The web site is located at: <http://www.iapd.org/>.

Plastic Pipe and Fittings Association (PPFA)

Building C, Suite 20	Members: 73
800 Roosevelt Road	Staff: 4
Glen Ellyn, IL 60137	Budget:
Phone: (708) 858-6540	Contact: Richard W. Church
Fax: (630) 790-3095	

Founded in 1978, PPFA represents raw material suppliers, processors, machinery suppliers, consultants, and testing labs for plastic pipe and fittings. PPFA's objectives are to provide a forum for exchange of information and ideas; to see that existing code approvals for use of plastic pipe and fittings are retained; to obtain additional code approvals and develop new markets for products; to provide leadership and continuity for the industry; and to seek liaison and involvement with other organizations within the industry. The web site is located at: <http://www.ppfahome.org/>.

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