Serigraph Annual Green Tier Report – For Calendar Year 2014

Facility Summary, Milestones, and Context for Performance Data

Facility Summary

Serigraph Inc. is a manufacturer of decorative components for a wide range of OEM customers as well as the Point-of-Purchase advertising industry. Serigraph's environmental ethics extend beyond meeting and exceeding regulated and unregulated edicts. The scope of the Green Tier 2 application is Serigraph's plant 1 and plant 2 facilities, also known as the Industrial Graphics (IG) Division and Specialty Division respectively. Corporate headquarters is located in plant 2.

Opportunities are identified at Serigraph to prevent pollution, minimize the use of raw materials and reduce energy consumption as part of the ISO 14001 process. Efforts are in place to reduce waste at all levels of the organization. Serigraph made a presentation at the Green Chemistry Initiative held in Cleveland and to stakeholders in West Bend to share its sustainability and pollution prevention activities which were well received. Sales were up 4% from previous fiscal year but the volume of parts produced was down 15% which partially accounts for the lower usage numbers. Some ratios to parts produced showed a slight decline but the hazardous waste ratio showed improvement.

Context for Performance Data

Data collected is for the IG Division and Specialty Division.

Table 1: Improved Environmental Performance

TYPE OF PERFOR-MANCE MEASURE	METRIC (Suggested Units) SigEA=Significant Environmental Aspect)	DATA COLLEC-TION	2004 (Baseline)	2011	2012	2013	2014		NOTES
Air emissions (SigEA)	VOCs tons/year	Serigraph	18.58	15.28	18.91	19.73	17.9		Sales growth in 2014 as well as more in mold projects that require solvent based inks resulted in increased VOCs per 10K. The ratio is significantly lower from baseline year
	Pounds of VOCs per 10,000 parts produced	IG Division	6.97	3.70	3.42	2.75	3.14		
	HAPs (tons/year)	Serigraph P2	12.7	5.1	9.3	9.5	9.8		HAPs Total tons went up slightly as well as ratio due to product mix that required solvent based inks
	Pounds of HAPS per 10,000 parts produced	IG Division	2.9	1.5	1.7	1.5	1.7		
Energy use reduction (SigEA)	Electricity (KWh/year)	Serigraph P2	14,635,574	12,887,830	13,138,753	10,037,753	9,952,395		Overall consumption was down but volume of parts was also down
	Parts produced per kWh	IG Div	5	6	8	14	11.5		
	Natural gas (Therms/year)	Serigraph P2	385,583	397,732	404,758	418,476	423,493		Overall consumption was down but volume of parts was also down
	Parts produced per Therm	IG Div	91.9	207.9	273.5	342.8	269.3		
Non-Hazardous waste	Water based ink waste, UV ink waste, Used oil	Serigraph	94,963	10,693	9,080	11,741	7,826		As a ratio to parts produced, non-hazardous waste has decreased as well as total pounds
Hazardous waste (SigEA)	Hazardous waste (lbs/year)	Serigraph P2	83,213	22,511	17,386	20.938	13,301		Hazardous waste reduced by using recycled wipes as well as EPA ruling of contaminated wipe exemption
	Haz waste lbs as ratio to 10,000 parts produced		14.99	2.72	1.57	1.46	1.17		
Amount of recycling (SigEA)	Polycarbonate-recycled (lbs/year)	Serigraph	992,291	402,250	546,018	678,007	647,906		Less scrap = less recycled waste
	Paper-total recycled (lbs/year)	Serigraph	968,681	547,530	662,472	623,046	597,791		
	Metals-recycled (lbs/year)	Serigraph	129,425	165,328	32,998	65,443	62,888		
	Reclaim - Reduce ratio of pounds of solvent used per sq in of mesh used **(Must be <.05)**	Serigraph Plt 2	.016	.018	.026	.034	.028		More screens used with solvent based inks as product mix changes

TYPE OF PERFOR-MANCE MEASURE	METRIC (Suggested Units) SigEA=Significant Environmental Aspect)	DATA COLLEC-TION	2004 (Baseline)	2011	2012	2013	2014		NOTES
	Percentage of Low VOC (<3.3 lbs/gal) ink versus Conventional	Serigraph	52.2%	62.6%	59.7%	66.9%	63.7%		Dictated by % of product that is formed and customer designs. Low VOC inks are selected whenever possible

Table 2: "Beyond Compliance" Activities and Improved Management Practices

TYPE OF PERFOR-MANCE MEASURE	METRIC (Suggested Units)	DATA COLLECTION	2004 (Baseline)	2011	2012	2013	2014		NOTES
Commitments to "superior environmental performance" (from Green Tier acceptance letter)	VOC and air toxics emissions reductions	See VOC/HAP measures in Table 1	See Table 1	See Table 1	See Table 1	See Table 1	See table 1		
	Waste minimization, including recycling	See recycling, solid waste, and hazardous waste measures in Table 1	See Table 1	See Table 1	See Table 1	See Table 1	See table 1		
	Minimizing solvent usage for Parts cleaning (lbs per year)	Serigraph P2	4,336	822	820	805	410		
	Reduction in electrical consumption	See electricity consumption in Table 1	See Table 1	See Table 1	See Table 1	See Table 1	See Table 1		
	Prairie restoration and maintenance	Serigraph	75 acres	75 acres	75 acres	75 acres	75 acres		
	Low VOC coatings to replace conventional ink % (UV lbs/total lbs ink used)	Serigraph P2		62.6%	59.7%	66.9%	63.7%		Continuing to use more UV ink which is VOC free
	Greenhouse gasses sequestered, e.g., through native plants (Amount of C02 absorbed per year)	Serigraph	30 tons	30 tons	30 tons	30 tons	30 tons		
Environmental management improvement	Number of spill (spills per year)	Serigraph	2	0	0	0	0		
Environmental management improvement	# of EMS non-conformances identified in annual internal EMS audits	Serigraph P2	N/A	0	0	0	0		

Table 3: Pollution Prevention Activities Identified and Undertaken

Prevention Activities	Year Initiated	Relevant Outcome Measure (Impact on Environment)
Recycling	1989	Increase Recycling measures to reduce landfill
Focusing on operational excellence (including identifying and developing low VOC ink systems)	1997	Reduce VOC emissions
Develop and test alternative ink systems	2000	Reduce VOC content per unit of ink used
Researching alternative low-VOC solvents	2003	Reduce VOC emissions
Tested and using low VOC wash solutions	2003	Reduce VOC emissions
Entered into an interruptible power agreement with WE Energy	2005	Reduce Electricity use
Installed energy efficient frequency drive motors in the cooling towers	2005	Reduce Electricity use
Use VOC-free fountain solution in the pressroom	2005	Reduce VOC emissions
Pumping water used during screen reclamation to bio-filter instead of using fresh water from city	2006	Reduce Water use
Purchased a power monitoring and energy shed program for building management system	2006	Reduce Electricity use
Installed energy efficient lighting fixtures throughout plant 2	2008	Reduce Electricity use
Replaced de-ionized water in Reliability lab with Reverse Osmosis treated water already available in plant	2009	Reduce energy usage
Pumping anti-foam into water before bio-filter reservoir instead of after to prevent foam rather than controlling it.	2010	Reduce Water use
1. Installed energy efficient lighting in new Fulfillment facility. 2. Eliminated salting and plowing of western edge of parking lot which is not used saving 4,500 lbs of salt/yr and preventing runoff. 3. Installed additional motion sensors	2011	Reduce energy usage Prevent runoff, reduce vehicle emissions Reduce energy usage
Installed LED lighting for inspection replacing incandescent in P2	2012	Reduce energy usage, improve ergonomics/safety
Added LED parking lot lighting at Specialty plant	2014	Reduce energy consumption and improve safety

Significant Environmental Aspects

Operation	Aspect Input/Output	Frequency	Severity	Controls	Priority Number (FxSxC)	Legal / Regulatory requirement
Screen Reclaim - Cleaning Screens	VOC Reduction	4	5	2	**40.0**	DNR Air Permit NR 407; NR 422
Biofilter operation	HAP & VOC Control	3	5	2	**30.0**	SARA Title 313; DNR Air Permit NR 407, NR 423
Printing, Ink room, Post Printing	Hazardous Waste	4	4	2	**32.0**	NR 600
Production / Facility (Electricity and Natural Gas)	Power Consumption	5	3	2	**30.0**	
Printing/Post Printing (Cleaning Solvents)	VOC Reduction	4	3	2	**24.0**	DNR Air Permit NR 407; NR 422
Ink room - Matching Colors (Solvents)	VOC Reduction	4	3	2	**24.0**	SARA Title 313; DNR Air Permit NR 407, NR 423
Printing, Ink room, Post Printing	Scrap material Recycling	5	3	2	**30.0**	
Sulfuric acid storage	Hazardous Chemical	4	4	2	**32.0**	Tier II
Hazardous waste storage / Disposal	Hazardous waste	4	4	2	**32.0**	RCRA

Controls for Significant Aspects:	
Procedure to control VOC reclaim Solvents	SCR-21.734-F
Biofilter Abatement plan	ENV-17.004-P
VOC Reduction using UV to replace Conventional ink Using Launch Process when possible and / or Bio-filter	SAL - 2.009-P
Printing Scrap % of Sales Control	Dashboard
Recycling procedure for materials	ENV-17.357-W, ENV-17.357-F
VOC Reduction using proper screen reclamation process	SCR-21.353-W
Sulfuric acid control and storage procedure	ENV-17.369-W
Hazardous waste storage / Disposal process	ENV-17.368-W
	ENV-17.371-W
VOC cleaning solvents	ENV-17.376-W

Significant Aspects Continual Improvement:

Water removed from FY 2008 due to Water reclamation project

Blue tape removed from FY 2008 due to change in procedures

Procedure to control wipes removed from FY 2008

Lighting system change from metal hyalite to fluorescent to save electricity

De-ionized water replaced with RO water

Implemented on base electonic filing system 2009

Tool cleaning solvent process changed in 2009 to reduce usage

Wipes - Purchasing buys reusable wipes

Water saved by adding defoamer in chiller room to reduce fresh water usage in 2011