TOXIC SUBSTANCE REDUCTION PLAN

FOR

XYLENE

VACUUM METALLIZING LIMITED
30 DOVEDALE COURT
TORONTO, ON M1S 5A7

December, 2012

B. *TOXIC SUBSTANCE REDUCTION PLAN FOR XYLENE (CAS 1330-20-7)*

Xylene is one of five toxic substances used at the facility for which Toxic Substance Reduction Plans (TSRP's) are required. These solvents are all used in the same processes and in many situations are emitted together. To avoid unnecessary duplication, information common to all of the TSRP's is provided in a single Master Document and this Master Document is referenced by the TSRP for each toxic substance. Accordingly The Master Document and this TSRP for xylene comprise Vacuum Metallizing Limited's complete Toxic Substance reduction Plan for xylene.

1. *Facility Identification*

See Master Document, Section 1.

2. *Contacts*

See Master Document, Section 2.

3. *Intention to Reduce Use of Xylene and Objective of This TSRP:*

See Master Document, Section 3.

4. *Use of Xylene*

See Master Document, Section 4 for a description of how and where xylene and other solvents are used at Vacuum Metallizing Limited.

In 2011, all of the xylene used at the facility arrived in the following purchased materials: 33C36, 3001, 3064, SW7000, SW Car Paint, RHF75 and PSCW-20L. No xylene was purchased specifically for use as a paint thinner. The following chart illustrates how these paints are used:

	Spray Paint Application		Flowcoat Paint Application	
	Basecoat	Topcoat	Basecoat	Topcoat
33C36	X		X	X
3064	X		X	X
3001	X		X	
SW7000	X			
RHF75	X			
Multi 4U	X			
Patio	X			
PSCW-20L	X	(Machine maintenance only)		

4.1 *Stages and Processes that Use Xylene*

See Master Document, Section 4.1 for a description of the stages and process at vacuum Metallizing Limited.

5. *Tracking of Xylene at the Process Level*

See Master Document, Section 5 for a description of each stage and process at Vacuum Metallizing Limited. A process flow diagram is provided for each process to provide a visual illustration of:

- how xylene enters the process
- whether xylene is created, destroyed or transformed during the process
- how xylene leaves the process and what happens to it after it leaves the process

Notational references contained in this TSRP document (e.g. U, Int1, Int2, Dis1, A3) are the same as those used in the Master Document.

The processes in which each of the above-listed paints is used are as follows:

Receiving Stage – Solvent Receiving and Storage Process: All above-listed paints
Basecoat Stage
Spray Painting Preparation, Spray Painting and Spray Paint Curing Processes:
All above-listed paints
Flowcoat Painting Preparation, Flowcoat Painting and Flowcoat Curing Processes:
33C36, 3064 and 3001.
Curing Process – All above-listed paints
Topcoat Stage
Flowcoat Painting Preparation, Flowcoat Painting and Flowcoat Curing Processes:
33C36 and 3064

6. *Tracking and Quantification of Xylene at the Process Level*

In this section, the following information is identified or presented for each of the processes identified in Section 5 in which xylene is used:

- the method or combination of methods used to track and quantify xylene in the process
- why the method or combination of methods was chosen
- the quantification of xylene in the process
- an explanation of any discrepancy between the input quantity (use of xylene) and the output quantity (release and disposal of xylene)

All xylene used at Vacuum Metallizing Limited is ultimately released to air or disposed of and none is transformed, destroyed or contained in products (i.e. in cured coatings applied onto customer-supplied components).

In this TSRP, individual releases and disposals of xylene exiting processes are not quantified and separated from cumulative releases where (a) the amount of an individual release/disposal is not measured, and (b) the quantity of the individual release/disposal is not significant relative to the quantity released/disposed by the primary source of release (e.g. the mass of xylene releases/disposals from maintenance activities as compared to the amount released/disposed from production activities). Measuring and quantifying

these small releases would require source sampling and the associated expense cannot be financially justified considering the small amount of potential savings and the fact that any meaningful toxic substance/cost reduction strategy would not address these small individual address sources of release but would affect the use of all paints and solvents (and the toxic substances contained within them) in every process.

The information presented herein for each process, refers to the process description and corresponding process flow diagram presented in the Master Document.

SOLVENT RECEIVING AND STORAGE PROCESS

As noted, all paints that are purchased are received and moved to the Paint Storage Room (input U). For paints 33C36, 3064 and 3001, the drum is moved onto a rack and stored in a horizontal position until it is dispensed for use as a sprayed basecoat (Int2), a sprayed topcoat (Int3), a flowcoated basecoat (Int4) or a flowcoated topcoat (Int5). Xylene is not used as a rinse agent in the Pretreatment Process (Int1). Xylene may evaporate upon opening and dispensing the contents of a container, upon removing the bung in a drum and inserting a dispensing valve, from a dispensing valve that leaks because it does not thread in or close properly, and from a rag used to clean up the spilled paint (A1). Xylene may remain in the rag when it is thrown in the trash (Dis1).

Process input/output balance calculation: U = Int1 + Int2 + Int3 + Int4 + int5 + A1 + Dis1

a) Xylene that enters the process (U)

(i) Quantification Method : Mass Balance

Supplier invoices provide the number of containers received and the net weight of each. The percentage of the paint that is xylene by weight or by volume is recorded in the supplier MSDS for each paint and this information is recorded in company documents supporting NPRI and ECA submissions.

(ii) Best Available Method Rationale:

This information is accurate and the method is cost effective as it is obtained directly from accounting documents and information supplied from the manufacturers of the paints and no additional measurements are required. Containers are not opened or damaged during this sub- process and they do not leak so 100% of received material is moved to the Paint Storage Room.

(iii) Data Quality:

The quality of the data is considered "High" for reasons presented above.

(iv) Calculations of total mass of xylene that enters the process:

kg xylene used = (# containers of paint received) x (litres of paint per container) X (litres of xylene per litre of paint) X (mass of xylene per litre of xylene)

Calculations of total xylene used is in the process (U) are presented in table B1. The amount of xylene used was 1,279 kg and of this amount, 66 kg of xylene was not issued to production and remained in inventory at the end of the year.

b) Xylene exiting the process (Int1, Int2, Int3, Int4, Int5, D1, A1):

(i) Quantification Method : Combination of Mass Balance and Engineering Calculations

As explained in the Master Document, amounts of xylene released to air (A1) and disposed (D1) are considered to be negligible (i.e. A1 = D1 = 0). Accordingly, the total amount of xylene exiting the process (Int1+Int2+Int3+Int4+Int5+A1+D1) should be equal to the amount entering the process (U) less/plus any increase/decrease in the year-end inventory level versus the starting inventory level.

Xylene is not used in the Pretreatment Process (i.e. Int1 = 0).

All xylene received in SW7000, RHF75, Multi 4U, Patio and PSCW-20L paints is used in the Spray Paint Basecoat Preparation Process. The associated mass of xylene was determined in 6(a)(iv) using mass balance.

For each of 33C36, 3066 and 3001, inventory records are not maintained to directly account for the amount of xylene that is used in each of the subsequent processes so estimated usages are determined using engineering calculations as follows:

Xylene usage = (number of production loads painted) x (percentage of paint that is xylene) x (percentage of paint in the reduced mix) x (litres of paint mix consumed per production load) x (density of xylene).

The total amount of xylene exiting the process and which enters a subsequent process is the sum of the calculated usages of xylene for all paints used in that subsequent process.

The number of production loads, paint mix formulas and consumption of paint mix per production load are obtained from operating and production records. The percentage of xylene in the paint and the density of xylene is obtained from supplier records.

(ii) Best Available Method Rationale:

This information is cost effective as it is obtained directly from accounting documents, NPRI/ECA documents, departmental supervisors and information supplied from the manufacturers of the paints and no additional measurements are required. In any event the method used is the only one available as the amounts of xylene drawn from inventory for use in each of the subsequent processes are not recorded and physical measurement is not effective because painted items vary considerably in shape, size and quantity requiring constant modification of machine operating settings.

(iii) Data Quality

The quality of the data is considered "Average" as quantifications are derived from fundamental scientific principles, relevant empirical data and judgement based on

extensive observation. (Although the data quality associated with the distribution of xylene usage between the subsequent processes may not be as high as one would like, the data quality for the sum of the individual usages is "High"). See *Data Quality* in Section 6 of the Master Document.

(iv) Calculations of total mass of xylene that exits the process:

As noted, no xylene is used in the pretreatment process, released to air or disposed of (Int1 = A1 = Disp1 = 0). Calculations for the amounts of xylene exiting the process and which form usage inputs for subsequent processes are shown in Table B2. These amounts are as follows:

Int1 = 0 kg; Int2 = 1076.8 kg; Int3 = 0 kg; Int4 = 77.0 kg; Int5 = 29.3 kg

The input usage amount (U) of 1,279 kg does not equal the output amount (Int1+Int2+Int3+Int4+Int5) of 1,249 kg (i.e. 1,183 kg exiting the process plus the 66 kg increase in inventory). One reason for the difference is that input and output amounts were estimated using different methods. Input amount are based on purchasing and inventory records (which are precise) whereas output amounts are based on cost accounting/engineering calculations (which are based on estimated production rates, average reduction rates/paint concentrations, etc.) and plant operating records which are not always completed as accurately as management would like.

PRETREATMENT PROCESS

Xylene is not used in the Pretreatment Process. Accordingly:
Int1 = 0 (used)
A2 = 0 (released to air)
Dis2 = 0 (disposed of)
Rec1 = 0 (recycled internally for reuse)

PAINT PREPARATION PROCESSES

Paint mix for use in a spray or flowcoating application is blended in or in front of the Paint Storage Room in open containers which are transported by hand or using a dolly to the spray booth or flowcoater. Xylene is released to air during the time that ingredients are being dispensed and transported to the work station. If a paint spill occurs during dispensing/transport, xylene is released to air from the spilled material and from rags used to wipe up the spill. Xylene remaining in the rags is disposed of when the rags are discarded.

Process input/output balance calculations:

Spray Paint Basecoat Preparation Process: Int2 = Int6 + A3 + Dis3
Spray Paint Topcoat Preparation Process: Int3 = Int7 + A4 + Dis4
Flowcoat Paint Basecoat Preparation Process: Int4 = Int8 + A5 + Dis5
Flowcoat Paint Topcoat Preparation Process: Int5 = Int9 + A6 + Dis6

a) **Xylene that enters the process (Int2, Int3, Int4, Int5):**

Int1 = 0 kg; Int2 = 1076.8 kg; Int3 = 0 kg; Int4 = 77.0 kg; Int5 = 29.3 kg. Refer to Solvent receiving and Storage Process (b)(iv), above.

b) **Xylene exiting the process (Int6+A3+Dis3, Int7+A4+Dis4, Int8+A5+Dis5, Int9+A6+Dis6):**

Some small amount of xylene that enters the process evaporates when paint is dispensed and blended or when paint mix is spilled during dispensing/blending and transport to the painting machine and from rags used to clean up this spill (collectively A_x). Any xylene remaining in the rags is discarded along with the rags (Dis_x). No measurements are taken or records maintained to record spills because a spill occurs infrequently and involves a relatively small and insignificant amount of paint. Because pails are left open for only a few minutes and xylene's relatively low evaporation rate (0.86 vs nBA), the amount of a solvent lost through evaporation in this process is not significant, measured or recorded.

(i) Quantification Method : Combination of Mass Balance and "Best Guess" Estimates

Mass Balance because input amounts equal or almost equal output amounts. The amounts of xylene exiting to air or disposed of are provided from the memory and opinions of departmental supervisors.

(ii) Best Available Method Rationale: No data is recorded concerning the frequency and volume of spilled paints so this information is based on the memory and opinions of the painting department supervisors.

(iii) Data Quality:

Because the output mass of xylene is almost equal to input mass (i.e. significant loss to spills is not experienced), the quality of the data for the process output is no better or worse than that of the input. Accordingly the data is considered "Average".

(iv) Calculations of total mass of xylene that exits the process:

Assumptions:

- No spills occur during dispensing of SW7000, RHF75, Multi-4U, Patio and PSCW-20L as these materials are quite viscous and are infrequently used
- No amount of xylene released to air during dispensing and transport unless a spill occurs
- Spills occur on average once per week during blending or transport
- Each spill involves approximately one litre of material
- Only paint mix is spilled (as it less viscous than unreduced paint carried further)
- Spills of paint mix spills are distributed among all mixes/processes in accordance with their relative usages.

The formula for calculating mass of xylene exiting the process due to spills is as follows:

kg xylene used = (49 spills per year) x (distribution factor for paint/process combination) x (1 litre of paint mix per spill) x (% of paint mix that is xylene) x (density of xylene)

Calculations for the amounts of xylene exiting the process on account of spills are shown in Table B3. These amounts (in kg) are as follows:

(A3+Dis3) = 1.7 kg, (A4+Dis4) = 0.0 kg, (A35+Dis5) = 0.1 kg, (A6+Dis6) = 0.1 kg

Amounts exiting each process which are in turn inputs for subsequent painting processes are as follows:

Spray Paint Basecoat Preparaton (Int6 = Int2 – A3 - Dis3) = 1,076.8 - 1.7 = 1,075.1 kg
Spray Paint Topcoat Preparation (Int7 = Int3 - A4 - Dis4) = 0.0 kg
Flowcoat Paint Basecoat Preparation (Int8 = Int4 - A5 - Dis5) = 77.0 - 0.1 = 76.9 kg
Flowcoat Paint Topcoat Preparation (Int9 = Int5 - A6 - Dis6) = 29.3 - 0.1 = 29.2 kg

SPRAY PAINTING AND FLOWCOATING PROCESSSES

In both spraying and flowcoating processes, xylene is released to air in/from the painting machine while paint mix is being applied onto components and from the uncured coating on components that have been painted and which are being staged for the subsequent convection curing process . In the spray painting process, some amounts of xylene are released to air from daily and periodic machine maintenance operations and from the disposal of associated waste materials. In the flowcoating process, some amounts of xylene are released from paint remaining in the paint sump when the flowcoater is not in use. Releases/disposals are quantified as (A7+Dis7) from spray painting basecoats, (A8+Dis8) from spray painting topcoat, A9 from flowcoating basecoats and A10 from flowcoating topcoats.

Xylene is not used in rinsing paint lines and spray guns or flowcoater plumbing.

Process input/output balance calculation:

Basecoat Spray Painting Process: Int6 = Int10 + A7 + Dis7
Topcoat Spray Painting Process: Int7 = Int11 + A8 + Dis8
Basecoat Flowcoating Process: Int8 = Int12 + A9
Topcoat Flowcoating Process: Int9 = Int13 + A10

No recycled xylene is used in the flowcoating processes so Rec1 = 0 kg.

a) Xylene that enters the process (Int6, Int7, Int8, Int9):

Int6 = 1,075.1 kg, Int7 = 0.0 kg, Int8 = 76.9 kg, Int9 = 29.2 kg. Refer to Paint Preparation Process (b) (iv), above.

b) Xylene exiting the process (Int10+A7+Dis7, Int11+A8+Dis8, Int12+A9, Int13+A10):

The greatest amount of xylene exiting the process is released to air during paint application. A lesser amount exiting the process is contained in uncured paints on parts that are moved to the Curing Process (int10, Int11, Int12, Int13). Less significant amounts of xylene evaporate from the surface of coated parts collecting on carts (until the carts are filled at which time they are moved to the curing oven and are released/disposed of from maintenance activities).

(i) Quantification Method: Engineering Estimates

Emission factor common in the painting industry is used to separate emissions to air during paint application from those emitted during curing process.

(ii) Best Available Method Rationale:

A common convention used in the painting industry is that 80% of solvents are released from an applied coating during the coating process with the remaining 20% released during the curing process. This analysis uses this convention to determine the mass of xylene exiting the process to air and moving to the Curing Process. Because no data is available quantifying xylene exiting the process from maintenance activities or from uncured coating on standing parts, amounts of releases to air and disposals are calculated in the aggregate.

(iii) Data Quality:

The quality of the data is considered "Average" because the analysis uses a common industry convention which does not take into account the specific processes and materials used at VML.

(iv) Calculations of total mass of xylene that exits the process:

Convention: 80% of xylene in applied paint is released in the process and 20% is released in the subsequent curing process.

Amounts exiting each process are as follows:

Basecoat Spray Painting Process:	Int10 = 0.2 x Int6 = 0.2 x 1,075.1 = 215.0 kg
	(A7 + Dis7) = .8 x Int6 = 859.9 kg
Topcoat Spray Painting Process:	Int11 = 0.2 x Int7 = 0.2 x 0.0 = 0.0
	(A8 + Dis8) = 0.8 x 0.0 = 0.0 kg
Basecoat Flowcoating Process:	Int12 = 0.20 x Int8 = 0.20 x 76.9 = 15.4
	A9 = 0.8 x Int8 = 61.5 kg
Topcoat Flowcoating Process:	Int13 = 0.2 x Int9 = 0.2 x 29.2 = 5.8 kg
	A10 = 0.8 x Int9 = 23.4 kg

SPRAY PAINT AND FLOWCOAT PAINT CURING PROCESSSES

All painted coatings are full cured in a convection oven and it is assumed that 100% of xylene entering this process exits the process to air.

Process input/output balance calculation:

Spray Painting Basecoat Curing Process:	Int10 = A11
Spray Painting Topcoat Curing Process:	Int11 = A12
Flowcoating Basecoat Curing Process:	Int12 = A13
Flowcoating Topcoat Curing Process:	Int13 = A14

a) Xylene that enters the process (Int10, Int11, Int12, Int13):

Int10 = 215.0 kg, Int11 = 0.0 kg, Int12 = 15.4 kg, Int13= 5.8 kg. Refer to Spray Painting and Flowcoating Processes (b)(iv), above.

b) Xylene exiting the process (A11, A12, A13, A14):

(i) Quantification Method: Engineering Estimates

Emission factor common in the painting industry is used to separate emissions to air during paint application from those emitted during curing process.

(ii) Best Available Method Rationale:

See Spray Painting and Flowcoating Processes (b)(ii).

(iii) Data Quality:

See Spray Painting and Flowcoating Processes (b)(iii). Because the output mass of xylene is equal to input mass, the quality of the data for the process output is no better or worse than that of the input. Accordingly the data is considered "Average".

(iv) *Calculations of total mass of xylene that exits the process:*

Amounts exiting each process are the same as those entering the process as follows:

Spray Painting Basecoat Curing Process:	A11 = Int10 = 215.0 kg
Spray Painting Topcoat Curing Process:	A12 = Int11 = 0.0 kg
Flowcoating Basecoat Curing Process:	A13 = Int12 = 15.4 kg
Flowcoating Topcoat Curing Process:	A14 = Int13 = 5.8 kg

FACILITY-WIDE ACCOUNTING

Although all use of xylene by the facility is accounted for, as noted in (b)(iv) of the Solvent Receiving and Storage Process, there is a variance of 30 kg (4.9%) between the input usage amount (U) of 1,279 kg (reported to NPRI) and that of 1,249 kg (i.e. 1,183 kg leaving the process plus 66 kg remaining in storage) calculated herein, explained by the fact that different procedures were used for reporting NPRI emissions and usages in this TSRP.

Facility-level quantification data for xylene used at Vacuum Metallizing Limited in year 2011 is outlined in Table B4.

7. *Opportunities for Reducing the Use of Xylene*

Refer to Master Document, Section 7 for a general discussion about opportunities for reducing solvent use at Vacuum Metallizing Limited, for a list of options that were considered and evaluated.

As noted in the Master Document, Option (i), "*Recapture, recycle offsite and re-use solvents used to rinse spray guns and paint lines*" is the only option identified as being technically and economically feasible. However, in year 2011 this option did not apply to xylene as only mineral spirits was used for the subject purpose.

8. *Economic Analysis of Opportunities for Reduction in Use of Xylene*

Direct cost: Annual purchases of xylene: 1,279 kg x $1.80/kg = $2,302

Indirect Costs:
Receiving and storing xylene
Dispensing xylene
Paying supplier Invoices
Building overheads associated with plant storage area
Equipment maintenance costs
Spill cleanup costs
Personal protective equipment cost
Compliance reporting cost
Employee training cost
Limitation on production output due to MOE emission limits

Note that for each option, the possible impact of each of the above indirect costs was considered and that where an indirect cost does not appear in the analysis, it was determined that the indirect cost had a negligible impact, or that the indirect cost was not applicable to the subject option.

(i) Option (c): Replace xylene with non-voc solvent substitute
Assume same volume of xylene and of replacement solvent would be required.
Cost of xylene non-voc replacement solvent:
= 1,279 kg ÷ 0.868 kg /l = 1,474 litres x $4.21/litre = $6,206.

The increase in cost associated with Option (c) (before supplier markups) would be $6,206 - $2,302 = $3,904. However, all xylene used at the facility is contained in supplied paints and suppliers will likely mark up the cost of the xylene ingredient by 50% to 100%. Accordingly the increase in direct cost associated with this option would be $5,856 to $7,808.

Identified potential indirect cost savings and an evaluation of each are as follows:

Potential Savings: Ability to increase production output without exceeding MOE emission limits

Evaluation:	*No impact as company is operating under the limit and is unlikely to exceed it.*
Potential Savings:	Reduced compliance reporting costs.
Evaluation:	*Cost would not decrease with the implementation of this option because replacements are not available for all toxic substances used at the facility so compliance reporting would still be required. In addition, the cost of compliance reporting is not variable because reporting is performed by the company president who whose pay would remain the same regardless of whether or not he performs this function or how many hours he works.*
Conclusion:	*Option is not economically feasible because it would result in significant increase in cost.*

ii) Options (i) and (j): Recapture, recycle on-site/off-site and reuse solvents used to clean spray guns and paint lines

Options do not apply to xylene.

iii) Option (l): Purchase paints in smaller quantities:

This option would reduce the amount of xylene received and held in inventory by reducing the number of drums of 3001 and 3141 (from Color Coatings) and of AB35 and 3003 (from Jema) purchased at any one time and held in inventory.

Estimated annual direct savings associated with a 50% decrease in purchase amounts:

On average, amount of paint used and purchased would be unchanged		($ 0)

Estimated annual indirect savings:

Capital cost saving associated with reduction:		
2 drums 3001 @ $1,200 ea. x 2.0%	$ 48	
24 pails of 3141 @ $106 ea x 2.0%	51	
2 drums of AB35 @ $1,705 x 2.0%	68	
2 drums of 3003 @ $1,837 x 2.0%	73	
Total savings from freed-up capital		(240)
Savings from freed-up inventory area		(0)

Cost increases associated with making six additional paint shipments per year (2 per supplier):

Freight @ $450 per shipment	$2,700	
Generate six additional invoices per year @ $25 ea.	150	
Receive six additional shipments per year - 20 minutes each @ $20/hr.	40	
Total cost increases		2,890

Net cost increase/(decrease) $ 2,650

Evaluation: Implementation of option would increase cost without reducing usage.

Conclusion: Option is not economically feasible.

9. Implementation of Opportunities for Reducing the Use of Xylene

Vacuum Metallizing Limited does not plan to implement any of the identified options to reduce the usage of xylene at the facility because no option was found to be both technically and economically feasible at the present time for reasons presented in the Master Document.

As noted, Option (d) *"Replace HVHP spray guns with more efficient LVLP or LVHP spray guns"* is to be evaluated and results included in the June 1st TSRP update.

The company will continue to monitor the availability and cost of a non-voc replacement for xylene and include updated evaluation(s) in the TSRP updates.

10. Certifications

Certification by Toxic Reduction Planner:

As of Dec. 18, 2012, I Kaleem Muhammad certify that I am familiar with the processes atVacuum Metallizing Limited that uses or creates the toxic substance xylene, that I agree with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4(l) of the *Toxics Reduction Act, 2009* that are set out in the plan for xylene dated December 15, 2012 and that the plan complies with the act and Ontario Regulation 455/09 (General) made under that Act.

Kaleem Muhammad License #TSRP0252

Certification by highest-ranking employee of the facility having management responsibilities relating to the facility:

I, Jeffrey Sugar, certify that during 2012, a review of the toxic substance reduction plan for xylene was conducted in accordance with the *Toxics Reduction Act, 2009* and Ontario Regulation 455/09 (General) made under that Act. As of December 15, 2012, I also certify that I have read the toxic substance reduction plan dated December 15, 2012 for xylene and am familiar with its contents and to my knowledge the version of the plan is factually accurate and complies with the *Toxics Reduction Act, 2009* and Ontario Regulation 455/09.

Jeffrey Sugar, President
Vacuum Metallizing Limited

TABLE B1

CALCULATION OF THE MASS OF XYLENE ENTERING THE PROCESS

Paint	Volume Per Container (litres)	No. Containers Received	Paint Usage (litres)	Xylene by Volume (%)	Xylene Usage (litres)	Density of Xylene (kg/litre)	Xylene Usage (kg)	Starting Inventory	Ending Inventory	Inventory Incr/(Decr)	
										Units	(kg xylene)
33C36	205.0	8	1,640	20.0%	368	0.868	319	1.0	1.0	0.0	0
3001	208.2	14	2,915	36.3%	1,058	0.868	918	2.0	3.0	1	66
3064	18.9	4	76	21.0%	16	0.868	14	0.0	0.0	0	0
SW7000	1.0	26	25	14.4%	4	0.868	3	0.0	0.0	0	0
RHF75	3.8	4	15	9.0%	1	0.868	1	0.0	0.0	0	0
Multi 4U	205.0	1	205	11.0%	22	0.868	20	0.0	0.0	0	0
Patio	205.0	0.2	41	9.9%	2	0.868	2	0.0	0.0	0	0
PSCW-20L	18.9	13	246	1.1%	3	0.868	2	2.0	2.0	0	0
					1,474		1,279				66

TABLE B2

AMOUNT OF XYLENE EXITING THE SOLVENT RECEIVING AND STORAGE PROCESS (AMOUNTS ENTERING SUBSEQUENT PROCESSES)

PAINT	SUBSEQUENT PROCESS	PROCESS ID	XYLENE IN PAINT (%)	PAINT IN MIX (%)	XYLENE IN MIX (%)	MIX PER PRODUCTION LOAD (litres)	XYLENE PER PRODUCTION LOAD (litres)	DENSITY OF XYLENE (kg/litre)	XYLENE PER PRODUCTION LOAD (kg)	PRODUCTION LOADS	KG XYLENE USED (kg)
33C36	Flowcoat - Basecoat	Int4	22.4%	50.0%	11.2%	1.14	0.13	0.868	0.111	695	77.0
	Flowcoat - Topcoat	Int5	22.4%	33.3%	7.5%	1.14	0.09	0.868	0.074	397	29.3
33C36	Spray - Basecoat	Int2	22.4%	50.0%	11.2%	2.62	0.29	0.868	0.255	922	234.9
3001/AB35	Spray - Basecoat	Int2	36.3%	60.0%	21.8%	3.80	0.83	0.868	0.718	1114	800.0
3064	Spray - Basecoat	Int2	21.0%	50.0%	10.5%	2.62	0.28	0.868	0.239	58	13.8
SW 7000	Spray - Basecoat	Int2	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	3.1
RHF75	Spray - Basecoat	Int2	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.2
Multi 4U	Spray - Basecoat	Int2	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	19.5
Patio	Spray - Basecoat	Int2	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2.0
PCSW-20L	Spray - Basecoat	Int2	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2.3
Subtotal	Spray - Basecoat										1,076.8
TOTAL											1,183.1

TABLE B3

ALLOCATION AMONG PROCESSES OF XYLENE EXITING PAINT PREPARATION PROCESSES DUE TO SPILLS

PAINT DISPENSED IN PAILS	SUBSEQUENT PROCESS	PROCESS ID	TOTAL MIX SPILLED (litres)	DIST'N FACTOR (Table A2)	ALLOCATED SPILL VOLUME (litres)	XYLENE IN SPILLED MIX (%)	ALLOCATED XYLENE IN PAINT (litres)	DENSITY OF XYLENE (kg/litre)	XYLENE IN SPILLED PAINT (kg)
33C36	Spray - Basecoat		49	0.09	4.4	0.10	0.44	0.868	0.4
3001/AB35	Spray - Basecoat		49	0.16	7.8	0.20	1.55	0.868	1.3
3064	Spray - Basecoat		49	0.00	0.0	0.10	0.00	0.868	0.0
Subtotal	Spray - Basecoat	A3+Dis3							1.7
33C36	Flowcoat - Basecoat	A5+Dis5	49	0.03	1.5	0.10	0.15	0.868	0.1
	Flowcoat - Topcoat	A6+Dis6	49	0.02	1.0	0.07	0.07	0.868	0.1
TOTAL									1.9

TABLE B4

FACILITY-WIDE ACCOUNTING FOR XYLENE

Form of Involvement at the facility	PROCESS														All Processes
	Solvent Receiving and Storage	Pretreatment	Spray Paint Basecoat Preparation	Spray Paint Topcoat Preparation	Flowcoat Paint Basecoat Preparation	Flowcoat Paint Topcoat Preparation	Basecoat Spray Painting	Topcoat Spray Painting	Basecoat Flowcoating	Topcoat Flowcoating	Spray Painting Basecoat Curing	Spray Painting Topcoat Curing	Flowcoating Basecoat Curing	Flowcoating Topoat Curing	
Enters (use)	1279														1279
Created		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Released to air		0.0	1.7	0.0	0.1	0.1	859.9	0.0	61.5	23.4	215.0	0.0	15.4	5.8	1183
On-site disposal		0.0	incl.	incl.	incl.	incl.	incl.	incl.	incl.	incl.	incl.	incl.	0	0	incl.
Released to land		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Released to water		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Off-site disposal		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Transferred for recycling off-site		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Contained is shipped product		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Transformed		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Destroyed at facilty		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Unaccounted	30														
Remaining in storage*	66														

* This is also the variance between the amount reported to NPRI which was the amount purchased.

Toxic Reduction Planner's Recommendations: