TOXIC SUBSTANCE REDUCTION PLAN

FOR

METHYL ETHYL KETONE (MEK)

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

D. *TOXIC SUBSTANCE REDUCTION PLAN FOR METHYL ETHYL KETONE (CAS 78-93-3)*

Methy ethyl ketone (MEK) 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 MEK comprise Vacuum Metallizing Limited's complete Toxic Substance reduction Plan for MEK.

1. *Facility Identification*

See Master Document, Section 1.

2. *Contacts*

See Master Document, Section 2.

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

See Master Document, Section 3.

4. *Use of MEK*

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

In 2011, 89% of MEK used at the facility was purchased from suppliers in drums and used as a thinner paint formulations for spray painting 33C36 and 3003 while the remaining 11% of MEK used arrived in the remaining paints in the list, below. The following chart illustrates how these paints were used:

	Spray Paint Application		Flowcoat Paint Application	
	Basecoat	Topcoat	Basecoat	Topcoat
3141		X		
3001			X	
33C36	X			
CC947	X			
US3	X			
Patio	X			
PSCW-20L	X (machine maintenance only)			

4.1 *Stages and Processes that Use MEK*

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

5. *Tracking of MEK 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 MEK enters the process
- whether MEK is created, destroyed or transformed during the process
- how MEK 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 containing MEK is used are as follows:

Receiving Stage – Solvent Receiving and Storage Process: All above-listed paints
Pretreatment Process – 3001
Basecoat Stage
Spray Painting Preparation, Spray Painting and Spray Paint Curing Processes: 33C36, CC947, US3, Patio
Flowcoat Painting Preparation, Flowcoat Painting and Flowcoat Curing Processes: 3001
Topcoat Stage
Spray Painting Preparation, Spray Painting and Spray Paint Curing Processes: 3141

6. *Tracking and Quantification of MEK 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 MEK is used:

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

All MEK 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 MEK 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 MEK releases/disposals from maintenance activities as compared to the amount released/disposed from production activites). 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

MEK is purchased in drums for use as a paint thinner in 3141, 3001, and 33C36 paint formulations, is received an ingredient in drums of Patio paint, as an ingredient in pails of PCSW-20L paint and as an ingredient in quart and gallon containers of CC947 and US3 materials, all of which are moved to the Paint Storage Room for storage (input U). Drums to be dispensed are moved onto a rack and stored in horizontal position. Paint may be used as a sprayed basecoat (Int2), a sprayed topcoat (Int3), or a flowcoated basecoat (Int4), but MEK is not used in any flowcoated topcoat (Int5). MEK may be used as a rinse agent prior to basecoating 3001 the flowcoater (Pretreatment Process usage Int1). MEK may evaporate when blending paints, 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 solvent (A1). MEK 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) MEK that enters the process (U)

(i) Quantification Method : Mass Balance

Supplier invoices provide the number of containers received and the net weight of each.

(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 MEK that enters the process:

The total mass of MEK used in the process is the sum of MEK received for use as paint thinner plus MEK received in purchased paints.

MEK used in the process as thinner = (# drums of MEK received) x (kg of MEK per drum) = 19 drums x 165 kg/drum = 3,135 kg.

MEK received in a paint = (# containers of paint received) x (litres of paint per container) X (litres of MEK per litre of paint) X (mass of MEK per litre of MEK)

The amount of MEK used in paint is calculated at 397.6 kg in Table D1.

Total MEK used in the process U= 3,135.0 + 398 = 3,533 kg.

b) MEK 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, the amounts of MEK released to air (A1) and disposed (D1) are considered to be negligible (i.e. A1 = D1 = 0). Accordingly, the total amount of MEK exiting the process (Int1+Int2+Int3+Int4+Int5+A1+D1) should be equal to 3,533 kg., i.e. the amount entering the process (U) less/plus any increase/decrease in the year-end inventory level versus the starting inventory level.

No records are made of the amount of paint and solvent material drawn from inventory for use in the individual processes at the facility.

Engineering calculations are used to determine the amount of MEK contained in the paint mix used in each of the subsequent processes as follows:

MEK usage = (number of production loads painted) x (volume of paint mix per load) x (percentage of paint mix that is MEK) x (density of MEK).

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

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

(ii) Best Available Method Rationale:

This information is cost effective as it is obtained directly from accounting documents and information supplied from company supervisors, NPRI/ECA documentation and the MEK distributor and no additional measurements are required. In any event the method used is the only one available as the amounts of MEK 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 MEK 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 MEK that exits the process:

Calculations for amounts of MEK leaving the process are presented in Table D2.

Amount exiting to the pretreatment process:

Records indicate that no 3001 basecoat was flowcoated in 2011 so no parts would have been rinsed with MEK, i.e. Int1 = 0.

Mass of MEK exiting to the Spray Paint Basecoat Preparation Process (Int2), Spray Paint Topoat Preparation Process (Int3), Flowcoat Paint Basecoat Preparation Process (Int4) and Flowcoat Paint Topcoat Preparation Process (Int5) are calculated as follows:

Int_n = (% MEK in thinner) x (% thinner in paint mix) x (litres paint mix per production load) x (density of MEK)

As noted in table D2, the following amounts of MEK exited the process:

Int1 = 0.0 kg; Int2 = 1,010.8 kg; Int3 = 2,522.5 kg; Int4 = 0.0 kg; Int5 = 0.0 kg

PRETREATMENT PROCESS

MEK was 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 an open containers which is transported by hand or using a dolly to the spray booth or flowcoater. MEK 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, MEK is released to air from the spilled material and from rags used to wipe up the spill. MEK 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) MEK that enters the process (Int2, Int3, Int4, Int5):

Int1 = 0.0 kg; Int2 = 1,010.8 kg; Int3 = 2,522.5 kg; Int4 = 0.0 kg; Int5 = 0.0 kg. Refer to Solvent receiving and Storage Process (b)(iv), above.

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

Some small amount of MEK 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 MEK 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. Although MEK has a high evaporation rate (5.7 vs nBA), the amount of a solvent lost through evaporation in this process is not significant and is not measured or recorded because containers are left uncovered for only a few minutes at a time.

(i) 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.

(ii) Data Quality:

The quality of the data is considered "Uncertain". Considering the small amount of toxic substances released in the subject processes, the cost of improving the quality of the data cannot be justified.

(iii) Calculations of total mass of MEK that exits the process:

Assumptions:

- No amount of MEK 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 paint mix
- Paint spills are distributed among paints/processes in accordance with their relative usages.

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

kg MEK 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 MEK) x (density of MEK)

Calculations for the amounts of MEK exiting the process on account of spills are shown in Table D3. These amounts (in kg) are as follows:

(A3+Dis3) = 0.6, (A4+Dis4) = 4.9, (A35+Dis5) = 0.0, (A6+Dis6) = 0.0

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

Spray Paint Basecoat Preparation (Int6 = Int2 – A3 - Dis3) = 1,010.8 - 0.6 = 1,010.2 kg
Spray Paint Topcoat Preparation (Int7 = Int3 - A4 - Dis4) = 2,522.5 kg-4.9=2,517.6 kg
Flowcoat Paint Basecoat Preparation (Int8 = Int4 - A5 - Dis5) = 0.0- 0.0 = 0.0 kg
Flowcoat Paint Topcoat Preparation (Int9 = Int5 - A6 - Dis6) = 0.0- 0.0 = 0.0 kg

SPRAY PAINTING AND FLOWCOATING PROCESSSES

In both spraying and flowcoating processes, MEK 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 MEK 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 MEK 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.

MEK 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 MEK is used in the flowcoating processes so Rec1 = 0.

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

Int6 = 1,010.2 kg; Int7 = 2,517.6 kg; Int8 = 0.0 kg; Int9 = 0.0 kg. Refer to Paint Preparation Process (b) (iv), above.

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

The greatest amount of MEK 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 MEK 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) 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 MEK exiting the process and moving to the Curing Process. As no is available data quantifying MEK 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.

(ii) 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.

(iii) Calculations of total mass of MEK that exits the process:

Convention: 80% of MEK 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 1,010.2 = 202.0 kg
	(A7 + Dis7) = .8 x Int6 = 808.2 kg
Topcoat Spray Painting Process:	Int11 = 0.2 x Int7 = 0.2 x 2,517.6 = 503.5 kg
	(A8 + Dis8) = 0.8 x 0.0 = 2,014.1 kg
Basecoat Flowcoating Process:	Int12 = 0.20 x Int8 = 0.20 x 0.0 = 0.0 kg
	A9 = 0.8 x Int8 = 0.0 kg
Topcoat Flowcoating Process:	Int13 = 0.2 x Int9 = 0.2 x 0.0 = 0.0 kg
	A10 = 0.8 x Int9 = 0.0 kg

SPRAY AND FLOWCOATING CURING PROCESSSES

All painted coatings are full cured in a convection oven and it is assumed that 100% of MEK 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) MEK that enters the process (Int6, Int7, Int8, Int9):

Int10 = 202.0 kg; Int11 = 503.5 kg; Int12 = 0.0 kg; Int13 = 0.0 kg. Refer to Paint Preparation Process (b) (iv), above.
Refer to Spray Painting and Flowcoating Processes (b)(iv), above.

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

(i) Best Available Method Rationale:

Method is based on extensive observation and logic and is the only one that makes sense.

(ii) Data Quality:
Because the output mass of MEK is equal to input mass, the quality of the data for the process output can be no better than that of the input. Accordingly the data is considered "Average".

(iii) *Calculations of total mass of MEK 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 = 101.0 kg
Spray Painting Topcoat Curing Process:	A12 = Int11 = 503.5 kg
Flowcoating Basecoat Curing Process:	A13 = Int12 = 0.0 kg
Flowcoating Topcoat Curing Process:	A14 = Int13 = 0.0 kg

FACILITY-WIDE ACCOUNTING

All MEK used has been accounted for. There is a variance of 49 kg between the input usage amount (U) of 3,533 kg (reported to NPRI) and that of 3,582 kg (3,533 kg purchased + 49 kg decrease in inventory) calculated herein, due to the fact that different procedures were used for reporting NPRI emissions and usages in this TSRP.

Facility-level quantification data for MEK used at Vacuum Metallizing Limited in year 2011 is outlined in Table D4.

7. *Opportunities for Reducing the Use of MEK*

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 MEK as only mineral spirits was used for the subject purpose.

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

Direct cost: Annual purchases of MEK: 3,533 kg x $3.15/kg = $11,129

Indirect Costs:
Receiving and storing MEK
Dispensing MEK
Paying supplier Invoices
Building overheads associated with plant storage area
Equipment maintenance costs
Spill cleanup costs
Compliance reporting cost

Employee training cost
Personal Protective Equipment
Limitation on production output due to MOE emission limits

The following are economic evaluations for each of the options identified as potentially reducing the use of MEK. 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 MEK with non-voc solvent
Assume same volume of MEK and of replacement solvent would be required.
Cost of MEK non-voc replacement solvent:
= 3,533 kg ÷ 0.806 kg/l = 4,383 litres x $3.05/litre = $13,368.

The increase in cost associated with Option (c) (before supplier markups) would be $13,368 - $11,129 = $2,239.

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 MEK.

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

Only 398 kg of MEK were received at the facility in purchased 3141 paint, while the balance was purchased in drums for use as paint thinner. Only one or two drums for use as paint thinner are purchased per order and this quantity cannot be reduced.

An economic analysis of reducing purchases of 3141 from 48 pails to 24 pails per order is as follows:

Estimated annual direct savings (On average, amount Of paint purchased/used would be unchanged	($ 0)
Estimated annual indirect savings:	
Capital cost saving associated with reduction: 24 pails of 3141 @ $106 ea x 2.0%	51
Total savings from freed-up capital	($ 51)
Savings from freed-up inventory area	($ 0)
Cost increases associated with making three additional paint shipments per year:	
Freight @ $400 per shipment	
Generate three additional invoices per year @ $25 ea.	$ 700 75
Receive three additional shipments per year - 20 minutes each @ $20/hr.	20
Total cost increases	795
Net cost increase/(decrease)	$ 744

Evaluation: Implementing option would increase cost without reducing usage.

Conclusion: Option is not economically feasible.

9. *Implementation of Opportunities for Reducing the Use of MEK*

Vacuum Metallizing Limited does not plan to implement any of the identified options to reduce the usage of MEK 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 MEK 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 at Vacuum Metallizing Limited that uses or creates the toxic substance methyl ethyl ketone, 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 methyl ethyl ketone 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 methyl ethyl ketone 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 methyl ethyl ketone 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 D1

CALCULATION OF THE MASS OF MEK ENTERING THE PROCESS

Paint	Volume Per Container (litres)	No. Containers Received	Paint Usage (litres)	MEK by Volume (%)	MEK Usage (litres)	Density of MEK (kg/litre)	MEK Usage (kg)	Starting Inventory	Ending Inventory	Inventory Incr/(Decr)	
										Units	(kg MEK)
3141	18.9	99	1,871	20.00%	432.8	0.806	348.8	4.0	20.0	16.0	49
CC947	0	30	29	3.90%	1.1	0.806	0.9	0.0	0.0	0	0
US3	3.8	2	8	21.10%	1.6	0.806	1.3	0.0	0.0	0	0
Patio	205	0.2	41	2.40%	1.0	0.806	0.8	0.0	0.0	0	0
PSCW-20L	18.9	13	246	23.10%	56.8	0.806	45.8	0.0	0.0	0	0
					1,474.0		397.6				49

TABLE D2

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

PAINT	SUBSEQUENT PROCESS	PROCESS ID	MEK IN PAINT (%)	PAINT IN MIX (%)	MEK IN MIX (%)	MIX PER PRODUCTION LOAD (litres)	MEK PER PRODUCTION LOAD (litres)	DENSITY OF MEK (kg/litre)	MEK PER PRODUCTION LOAD (kg)	PRODUCTION LOADS	MEK USED (kg)
33C36	Spray - Basecoat		0.0%	50.0%	37.5%	2.62	0.98	0.806	0.792	922	730.4
3003	Spray - Basecoat		0.0%	50.0%	50.0%	3.80	1.90	0.806	1.531	55	84.2
CC947	Spray - Basecoat		4.0%	66.7%	2.7%	0.53	0.01	0.806	0.011	367	4.2
US3	Spray - Basecoat		20.0%	16.7%	3.3%	2.62	0.09	0.806	0.070	450	31.7
Patio	Spray - Basecoat		2.0%	100.0%	2.0%	5.10	0.10	0.806	0.082	930	76.5
PSCW-20L	Spray - Basecoat		20.0%	71.4%	45.1%	4.00	1.81	0.806	1.455	58	83.8
Subtotal	Spray - Basecoat	Int2							3.943		1,010.8
3003	Spray - Topcoat		0.0%	50.0%	50.0%	3.80	1.90	0.806	1.531	1437	2,200.6
3141	Spray - Topcoat		20.0%	50.0%	10.0%	3.80	0.38	0.806	0.306	891	272.9
Subtotal	Spray - Topcoat	Int3							1.838		2,473.5
3001	Flowcoat - Basecoat	Int4	0.0%	33.3%	58.3%	1.19	0.69	0.806	0.559	0	0.0
TOTAL											3,484.4

TABLE D3

ALLOCATION AMONG PROCESSES OF MEK 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)	MEK IN SPILLED MIX (%)	ALLOCATED MEK IN PAINT (litres)	DENSITY OF MEK (kg/litre)	MEK IN SPILLED PAINT (kg)
33C36	Spray - Basecoat		49	0.09	4.4	10.0%	0.44	0.806	0.4
3003	Spray - Basecoat		49	0.01	0.5	50.0%	0.25	0.806	0.2
Subtotal	Spray - Basecoat	A3+Dis3							0.6
3003	Spray - Topcoat		49	0.22	10.9	50.0%	5.45	0.806	4.4
3141	Spray - Topcoat		49	0.13	6.4	9.5%	0.61	0.806	0.5
Subtotal	Spray - Topcoat	A4+Dis4							4.9
3001	Flowcoat - Basecoat	A5+Dis5	49	0.00	0.0	58.3%	0.00	0.806	0.0
TOTAL									5.4

TABLE D4

FACILITY-WIDE ACCOUNTING FOR MEK

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)	3533														3533
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
Released to air		0.0	0.6	4.9	0.0	0.0	808.2	2014.1	0.0	0.0	202.0	503.5	0.00	0.0	3533
On-site disposal		incl.	incl.	incl.	incl.	incl.	incl.	incl.	incl.	incl.	incl.	0.0	incl.	incl.	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	-49														
Remaining in storage*	49														

Toxic Reduction Planner's Recommendations: