May 27th, 2015

2014 TOXIC SUBSTANCE REDUCTION PLAN

Prepared for:

WEATHERSTRONG BUILDING PRODUCTS

37 Union Street, Smiths Falls, Ontario, K7A 4Z4

Attention: **Guy Boudreault, Plant Manager**
Phone: **(613) 283-0999**
Email: **Guy90@kaycan.ca**

Prepared by: **Doug Stowe P.Eng. CHMM TSRP**
Stowe Engineering
211 Spring Street, Almonte, Ontario K0A 1A0
Phone: **(613) 256-9321**
Email: **doug@stowe-engineering.ca**
Web: **www.stowe-engineering.ca**

STATEMENT OF INTENT

Weatherstrong paints aluminum sheet metal used as siding for building materials. Formulations for design, and paint specification are provided by the parent company Kaycan. Weatherstrong uses the specified paints in an optimized automated paint line where bare aluminum rolls are loaded at one end, fed through processing and painted aluminum rolls are finished at the opposite end of the line. Using the specified materials Weatherstrong strives to optimize the process while reducing operating costs. The facility does not create any solvents; therefore its plan will not address reducing solvent creation.

1.0 OBJECTIVE

Weatherstrong will strive to minimize waste and optimize the use of paints, efficiently preventing excessive emissions through the use of a catalytic oxidizer maintained to support a highly efficient destruction rate (97-99%). Further, this plan will determine the technical and economic feasibility of each option to determine which, if any, are viable for implementation.

1.1 TARGETS

(i) To improve spill containment strategies on site;

(ii) To optimize energy consumption relating to paint line operations.

2.0 DESCRIPTION OF THE TOXIC SUBSTANCE

Various VOCs are components of the paint used. There are also variations in paint colour that result in different compositions of the paint solutions. Based on the annual paint use, the four chemicals tabled below were identified as meeting the NPRI reporting threshold. Although the total amount of VOCs used was 257 tonnes, the catalytic oxidizer with 99% efficiency effectively reduced the overall VOC emission (Part 5) below the reporting threshold.

The substances listed below require the development of a Toxic Substance Reduction Plan based on the criteria set out in the Toxics Reduction Act, and Ontario Regulation 455/09:

Substance	CAS#
Butoxyethanol	111-76-2
Butyl alcohol	71-36-3
Trimethylbenzene	95-63-6
Xylene (all isomers)15	1330-20-7

3.0 FACILITY INFORMATION

Name: Weatherstrong Building Products, 37 Union Street, Smiths Falls, Ontario, K7A 4Z4
NPRI #: 0000005703
NAICS Code: 332810
# of Full-time Employees: 32
UTM Coordinates (NAD83): Latitude 44.9125, Longitude -76.0220

3.1 Owner/Contact of the Facility Information

Contact: Guy Boudreault, Plant Manager, Weatherstrong Building Products
Address: 37 Union Street, Smiths Falls Ontario, K7A 4Z4
Phone: (613) 283-0999
E-mail: Guy90@kaycan.ca

3.2 Operator of the Facility Information

Name: Guy Boudreault, Plant Manager, Weatherstrong Building Products
Address: 37 Union Street, Smiths Falls Ontario, K7A 4Z4
Phone Number: (613) 283-0999

3.3 Highest Ranking Employee at the Facility Information

Name: Guy Boudreault, Plant Manager, Weatherstrong Building Products
Address: 37 Union Street, Smiths Falls Ontario, K7A 4Z4
Phone: (613) 283-0999
E-mail: Guy90@kaycan.ca

This facility is a subsidiary of Kaycan.

3.4 Parent Company Information

Name: Kaycan
Address: 3075 Trans Canada Hwy, Pointe Claire,Quebec, H9R 1B4
Phone: (613) 283-0999
Percentage of Facility Owned by Company: 100 per cent
Business Number: 102777612RC0001

3.5 Toxic Substances for Which Facility Must Prepare Plan:

Substance	CAS#	MPO (tonnes)
Butoxyethanol	111-76-2	23.9
Butyl alcohol	71-36-3	12.0
Trimethylbenzene	95-63-6	26.2
Xylene (all isomers)15	1330-20-7	20.0

3.6 Plan Contacts

Person Coordinating the Preparation of the Plan

Name: Guy Boudreault, Plant Manager, Weatherstrong Building Products
Address: 37 Union Street, Smiths Falls Ontario, K7A 4Z4
Phone: (613) 283-0999
E-mail: Guy90@kaycan.ca

3.7 Person Who Prepared the Plan

Name: Doug Stowe P.Eng. TSRP
Position: Toxic Substance Reduction Planner (#TSRP0157)
Address: 73 Mill St., PO Box 486, Almonte, Ontario K0A1A0
Phone: (613)256-9321
E-mail: Doug@stowe-engineering.ca

3.8 Public Contact

Name: Guy Boudreault, Plant Manager, Weatherstrong Building Products
Address: 37 Union Street, Smiths Falls Ontario, K7A 4Z4
Phone: (613) 283-0999
E-mail: Guy90@kaycan.ca

3.9 Technical Contact

Name: Doug Stowe P.Eng. TSRP
Position: Toxic Substance Reduction Planner (#TSRP0157)
Address: 73 Mill St., PO Box 486, Almonte, Ontario K0A1A0
Phone: (613)256-9321
E-mail: Doug@stowe-engineering.ca

4.0 STAGES AND PROCESSES THAT USE THE TOXIC SUBSTANCES

4.1 STAGES

The main stages for paint processing: Purchasing & Receiving, Storage, Production and Shipping. The substances are present in the first three stages.

PURCHASE & RECEIVING	STORAGE	PRODUCTION	SHIPPING
Paints	Paint barrels	Paint dispensing Paint application	Product Hazardous Waste Reclaim

4.2 Paint Line Description

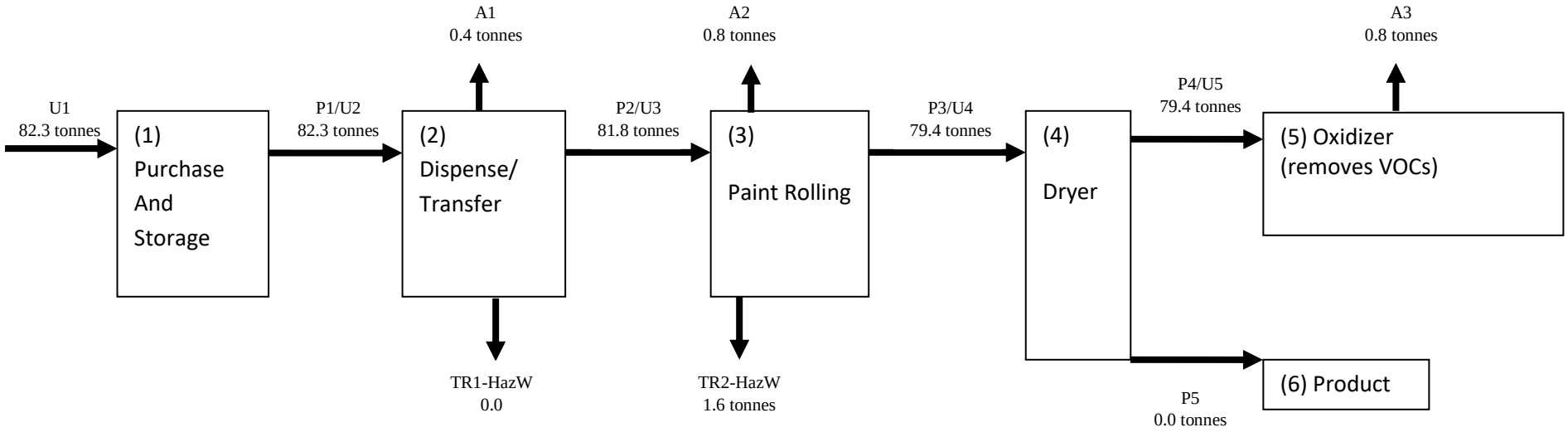
Weatherstrong produces painted aluminum sheet siding for the buildings.

Paint Line: Bare aluminum sheet is received at the plant in rolls in the warehouse. A roll is loaded onto a feed station on the line and gradually uncoiled to feed through a series of processing stages in the paint line. Initially the aluminum is cleaned and dried before it passes across a paint roller. Paint may be applied to one or both sides of the roll. The painted surface passes through a long gas-heated drying oven that cures the paint onto the aluminum and releases any carrier VOC solvents. The finished dry painted sheet is coiled up again at the opposite end of the line, removed from the cradle and packaged for shipment.
All the VOC components emitted from the drying oven during production are captured and treated in a catalytic oxidizer with a design destruction efficiency rating of 99%.

Solvent Dispense: Solvent dispensing is done in an ancillary Solvent Dispense Room serviced with two wall mounted exhaust fans. Diacetone alcohol and Aromatic A100 are used to clean sections of the paint line. Both solvents are dispensed into 20 litre containers and brought to the paint line for in-situ cleaning. Contaminated solvent solutions are brought back into the Solvent Dispense Room and decanted into a storage container for eventual shipment as hazardous waste.

5.0 FLOW CHARTS – MASS BALANCE

5.1 Paint line process



LEGEND

→	Paint Line Process Components
→	Solvent Cleaning Process Components
U	Used
P	Produced
TR	Toxic Waste Recycled or Hazardous Waste Disposal
A	Air Emission
Re	Reclaim
HazW	Hazardous Waste

DQL Data Quality Level = "Average"

5.2 NPRI Reportable Substances

Part 1A	CAS#	MPO (tonnes)	Reportable? (Y/N)
Butoxyethanol	111-76-2	23.9	YES
Butyl alcohol	71-36-3	12.0	YES
Trimethylbenzene	95-63-6	26.2	YES
Xylene (all isomers)15	1330-20-7	20.0	YES

VOCs are destroyed by the oxidizer reducing the total air emissions below the 5 tonnes threshold so no reporting for VOCs is required:

Part 5			Reportable? (Y/N)
TOTAL VOCs	**All paints (tonnes)**	**257.0**	
Emission Factor	All emissions	0.01	
Total Emission of VOCs		**2.6**	NO

5.3 MASS BALANCE - EACH FLOW

ID	VALUE	UNIT
U1	82.25	tonnes
U2	82.25	tonnes
U3	81.84	tonnes
U4	79.38	tonnes
U5	79.38	tonnes
P1	82.25	tonnes
P2	81.84	tonnes
P3	79.38	tonnes
P4	79.38	tonnes
P5	-	tonnes
A1	0.41	tonnes
A2	0.82	tonnes
A3	0.79	tonnes
TR1	-	tonnes
TR2	1.64	tonnes
Labour		
		SUBTOTALS

5.4 CALCUALTIONS

PROCESS	ID		Qty	Unit
PURCHASING & STORAGE				
Labour				
Paint purchased			128,320.00	US Gal
Paint Purchased (kilograms)			712,122.2	kg
Paint Purchased (Tonnes)		$1.00	712.1	tonnes
Heating warehouse / office				
Space Heaters			311,400.0	m^3/year
PAINTING				
NPRI Reportable Components:				
Butoxyethanol	U1w	3.4%	23.9	tonnes
Butyl alcohol	U1x	1.7%	12.0	tonnes
Trimethylbenzene	U1y	3.7%	26.2	tonnes
Xylene (all isomers)15	U1z	2.8%	20.0	tonnes
Let U1 = sum of all reportable substances	**U1**	11.6%	82.3	tonnes
Paint remains in drums through Storage	**P1/U2**		82.3	tonnes
Dispense from drum leaves residual U1 in drums (0.5% of Annual Use); 100% volatized goes to air, remainder is recycled as non-hazardous waste	**TR1**	0.0%	-	tonnes
Residual in drum volatizes; (drums recycled neutral cost)	**A1**	0.5%	0.41	tonnes
Amount of component into paint line	**P2/U3**	99.5%	81.84	tonnes
PAINT ROLLING				
LABOUR FOR OPERATING PAINT LINE rate=		$18.50	hourly	
5 workers to operate line 50 wks/yr 24x7		$777,000	annual	
Roller has high transfer rate onto aluminum	**P3/U4**	97%	79.4	tonnes
Low volatile exhausted to catalytic oxidizer	**A2**	1%	0.8	tonnes
Small percentage of residual paint removed with solvent cleaning as hazardous waste Estimate haza waste disposal cost	**TR2**	2%	1.6	tonnes
DRYER				

PROCESS	ID		Qty	Unit
100% of paint volatiles removed and exhausted through oxidizer to completely dry paint	**P4/U5**		79.4	tonnes
Oxidizer removes VOCs - Efficiency rating	**A3**	99%	0.8	tonnes
All VOCs removed: dry painted product	**P5**		-	tonnes
Supporting Equipment:				
Gas used for Catalytic Oxidizer (for U5)			610,000.0	m^3/year
Gas used in cleaner tank (for U3)			167,000.0	m^3/year
Gas used in oven (for U4)			445,500.0	m^3/year
Gas used in rinse tank (for U3)			100,250.0	m^3/year
CLEANING PAINT LINE				
Van-Sol 53 Purchased			3,780.0	Gallons
Van-Sol 53 Purchased in kg			12,489.1	kg
Diacetone Purchased			1,080.0	Gallons
Diacetone Purchased in kg			3,843.8	kg
Recycled Solvent Purchased			2,700.0	Gallons
Recycled Solvent Purchased in kg			9,265.2	kg
Total Solvent Purchased (add solvent cost in at U3)			25,598.1	kg

6.0 REDUCTION OPTIONS IDENTIFIED

#	PROCESS STAGE	OPTIONS CONSIDERED	Direct Consequences	Indirect Consequences	Assumptions
7.1	Material Substitution or Feedstock	Material Substitution Reduction Options:			
		(i) Use only recycled solvent to clean paint line	Reduce material costs		Recycled solvent does not degrade process cleaning operation and it is available
		Feedstock Change Options:			
		(ii) Investigate low VOC alternatives for paint [Option not considered: specified by parent company.]	Reduce toxic substances and VOCs	Reduce gas consumption	Rely on parent company to change this
7.2	Product Redesign or Reformulation	Product re-design or Reformulation Options:			
		(iii) [Not considered specified by parent company]			
7.3	Inventory Management or Purchasing Techniques	Improved inventory management or purchasing technique options:			
		(iv) Review option for using bulk containers to minimize container movement and reduce material costs [Not considered: expense and fixturing required]	Reduce material cost and labour cost	Reduce storage space requirements	No further handling equipment would be required
7.4	Equipment or process modification	Equipment or Process Modification opportunities:			
		(v) Review processes surrounding dispensing to decrease quantity of solvent used for cleaning operation	Reduce solvent cost	Reduced hazardous waste solvent disposal	A reduction can be made through further defining the process for cleaning the Paint Line; Target 2% reduction

#	PROCESS STAGE	OPTIONS CONSIDERED	Direct Consequences	Indirect Consequences	Assumptions
		(vi) Optimize gas burner systems: Improved efficiency on burners can reduce gas consumption Consider burners in preheat, rinse, oven and possibly oxidizer (but it already has 99% efficiency)		Reduce gas consumption	Burners can be improved. Annual gas consumption decreased by 1%
		(vii) Optimize oven drying temperature to reduce gas consumption	Reduce gas use		Assume a 1% reduction dryer gas use;
7.5	Spill and \leak prevention	Spill and leak prevention opportunities:			
		(viii) Containment of drums in solvent storage; **[Option not considered; no historical concerns, adequate trench containment]**	Not considered	Not considered	Not considered
		(ix) Containment of solvent around paint line during cleaning: **[Option not considered: minimal payback]**	Not considered	Not considered	Not considered
7.6	On-site reuse and Recycling	On-site re-use and Recycling opportunities:			
		(x) Re-use of contaminated solvent after cleaning; **[Option not considered: contaminated solvent would degrade product]**	Not considered	Not considered	Not considered
7.7	Training or Improved Operating Practices	Training or improved operating practice opportunities:			
		(xi) Optimize cleaning process or change method to reduce solvent consumption **[Estimate 5% reduction in solvent use]**;	Reduce solvent cleaning purchase quantity	Not considered	Assume 5% reduction in solvent use

*** NOTE: Creation/destroyed not considered/applicable**

7.0 ESTIMATED DIRCET AND INDIRECT COST

Direct costs were based on purchased costs for the paints and solvents. Direct labour costs were also included but no cost savings were directly determined based on reduced labour. Gas usage for heat was included in various cost calculations.

8.0 COMMENT ON MASS BALANCE RESULTS

Mass balance results assumed conservation of material through purchasing and shipping. Since actual measurements were not available percentages were used to estimate quantities to air and hazardous waste. Oxidizer emission rates were based on the specified efficiency of the oxidizer. Quality of data should be considered 'Average' meaning more improvements could be made in assuring accuracy through measurements.

9.0 REDUCTION OPTIONS SELECTED

9.1 Use only Recycled Solvent to Clean the Paint Line (Ref: 7.1 (i))

Understanding that recycled solvent may not be entirely effective since it is over 50% less expensive it can reduce the overall operating costs. This process change would require further review before proceeding.

9.2 Review the Process Around Paint Line Cleaning to Determine if Reductions (Ref 7.4 (v))

Over 25 tonnes of solvent are used annually for cleaning. A small reduction in solvent use could result in immediate payback. Labour should be taken into consideration in the analysis.

9.3 Optimize the use of Gas Burners (Ref 7.4 (vi))

It was observed that the drying oven uses a similar quantity of gas as the oxidizer. There may be opportunity to reduce or conserve energy saving gas consumption for this stage of the process. Although NPRI substance use would not change it could improve operating costs.

9.4 Improve Cleaning Process through Operator Training (Ref 7.7 (xi))

This opportunity is tied closely to leveraging the use of recycled solvent (10.1). A modification to the Operator procedure may decrease the amount of solvent required. This should be assessed and reviewed with process experts to ensure the quality remains sound and the procedure is safe

10.0 PLANNER COMMENTS

10.1 Calculation Changes Statement - Ref 26.(2)

This is the first year of calculations made by Stowe Engineering. The NPRI calculations were adjusted for VOCs based on the NPRI listing of components to align the actual individual components (that were VOCs) with the total VOC reading.
Diacetone, a solvent used is not listed on NPRI but is a VOC: This was added to the VOC calculation. (Note: Because of the oxidizer efficiency there was not requirement to report on

VOCs or VOC substances under Part 5 of the NPRI or the TRSP.)

No description of the change, the reason for the change and how the change will impact tracking and quantification of the substance was required.

10.2 Process Changes Statement – Ref 26(1) 5

There have been no significant process changes in operation over last year: No process changes over 15%.

10.3 Incident Impact Statement - Ref 26.(1) 6

There has been no incident out of the normal course of events at the facility during the previous calendar year whereby the incident could affect the results of tracking and quantification of the substance.

11.0 PLANNER RECOMMENDATIONS

The recommendations point towards reducing the amount of cleaning solvent used (25 tonnes). Although the solvent is not currently an NPRI reportable substance, it does contribute to the total VOCs and the material cost could result in a significant cost savings with a 1 year payback. cost-savings that can be applied to reducing the direct cost of lead solder. There are indirect

11.1 Evaluate Recycled Solvent

Identify the source and quality of recycled solvent. Verify if it can be used at a higher ratio than it currently is. Perform tests on the paint line.

11.2 Review the Solvent Cleaning Process

Over 25 tonnes of solvent are used to clean the roller unit annually. There may be alternative methods to conserve and/or reuse the cleaning solvent to conserve solvent and reduce waste. This may involve equipment and/or procedural changes.
Eliminating the loss of material before it is used is an immediate savings;

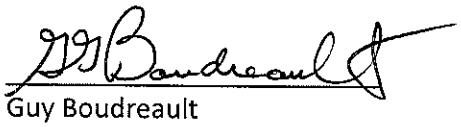
11.3 Improved Record Keeping / Oxidizer Efficiency

The NPRI tracking sheet was very good however; when looking at VOCs some MSDSs indicate a number specifically for VOCs while another number for a component (which is also a VOC). The worst case number is preferred for ensuring VOCs are kept well at hand. IN some cases VOCs were not clearly identified for reporting and were added in this year's calculations.
The oxidizer efficiency should also be verified annually to ensure it is maintaining the 99% efficiency identified as it is a critical control parameter in ensuring VOCs are abated.

12.0 PLAN CERTIFICATIONS – (for Substances)

I, Guy Boudreault, certify that I have read the toxic substance reduction plan for **the substances listed below** and am familiar with its contents, and to my knowledge the plan is factually accurate and complies with the Toxics Reduction Act, 2009 and Ontario Regulation 455/09 (General) made under that Act.

Part 1A	CAS#
Butoxyethanol	111-76-2
Butyl alcohol	71-36-3
Trimethylbenzene	95-63-6
Xylene (all isomers)15	1330-20-7



Guy Boudreault
Plant Manager, Weatherstrong
(Highest Ranking Employee)

Feb 23/17
Date

I, Doug Stowe, certify that I am familiar with the processes at Weatherstrong that use **the substances listed below**, that I agree with the estimates referred to in subparagraphs 7iii, iv and v of subsection 4 (1) of the Toxics Reduction Act, 2009 that are set out in the plan and that the plan complies with that Act and Ontario Regulation 455/09 (General) made under that Act.

Part 1A	CAS#
Butoxyethanol	111-76-2
Butyl alcohol	71-36-3
Trimethylbenzene	95-63-6
Xylene (all isomers)15	1330-20-7

Doug Stowe
President, Stowe Engineering
(Certified Toxic Substance Reduction Planner #TSRP0157)

May 27, 2015
Date