

**Toxic Substances Accounting Report  
2015 Update**

*Prepared for*  
**Brant Corrosion Control Inc.**  
(a division of T.F. Warren Group Inc.)

**30 Garnet Road,  
Brantford, ON**

*Project: 5634-16*



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## 1.0 INTRODUCTION

Altech Environmental Consulting Ltd. was retained by Brant Corrosion Control (BCC) (a Division of T.F. Warren Group Inc.) to complete the Toxic Substances Accounting Report for 2015 as per O.Reg. 455 for the facility located at 30 Garnet Rd., Brantford, Ontario.

### 1.1 Regulatory

Under the *Canadian Environmental Protection Act*, all industries in Canada are legally required to report their emissions and transfers of approximately 360 specified substances under the National Pollutant Release Inventory (NPRI) if the amounts of the listed substances exceed the regulatory minimum thresholds of quantities manufactured, produced or otherwise used (MPO). Ontario Regulation 127/01 (O. Reg. 127) expands on the NPRI list to include acetone emissions to air. Similar to NPRI, O. Reg. 127 requires annual air emission reporting.

The Ontario *Toxic Reduction Act* (TRA), promulgated in late 2009, is intended to better inform the Ontario public with respect to toxic substances in their environment and to encourage industry to reduce their usage of these toxic substances. The Act requires that industries report on emissions, similar to the NPRI, and also include information on the use and production of toxic substances in the operating facility. To minimize paperwork, Ontario aligned the list of reportable substances with those listed under the federal NPRI.

Ontario Regulation 455/09 is the active legislation behind TRA and applies to Ontario manufacturing industries with NAICS codes starting with 31, 32 or 33. The reportable substances for the 2015 reporting year include all substances currently reportable under the NPRI. Reportable information under both programs (NPRI and TRA) is required annually to be posted and verified on Environment Canada's web portal *Single Window for Information Management (SWIM)*. For the year 2015, the reporting deadline is June 1, 2015.

### 1.2 Scope of Work

Altech was contracted to provide the following:

1. Confirm reportable toxic substances for the site.
2. Enter chemical information for MPO substances from Material Safety Data Sheets (MSDSs) and related usage data, provided by BCC, in a customized Excel spreadsheet.
3. Prepare an emissions inventory, which includes determining the substances that must be reported.
4. Quantify inputs and outputs at the process flow level and complete mass balances for reportable substances.
5. Prepare TRA Accounting Report for company records, submission and MOECC review.
6. Complete SWIM data submission for both NPRI and the O. Reg. 455 (TRA).
7. On-line signoff by BCC will be required.
8. Provide BCC with a backup copy of the report.

### 1.3 Approach

In order to report under the TRA, Brant Corrosion Control provided an accounting of the substances purchased and used, and an accounting of the by-products, wastes or emissions, their composition and their quantities to Altech. Altech staff used a series of spreadsheets that allowed these data to be entered and calculated to identify annual quantities in metric tonnes, of the various input and output streams for the toxic substances. As noted above, O. Reg. 455 specifies that substances or substance classes at quantities that satisfied the NPRI Threshold Limits, were to be reported to the Ontario Ministry of the Environment for the 2015 reporting year. For Brant Corrosion Control, the substances that required reporting in 2015 to TRA were:

- Toluene
- Xylene
- Methyl ethyl ketone (MEK)

Two substances, which met the NPRI reporting threshold in 2012, but did not achieve the NPRI reporting threshold for 2013, 2014 nor 2015, were:

- Isopropyl alcohol (IPA)
- Particulate matter less than 2.5 microns (PM2.5)

One substance, which met the NPRI reporting threshold in 2011, but did not achieve the NPRI reporting threshold for 2012, 2013 and 2015, was:

- 4,4'-methylene bis(2-chloroaniline) (MOCA).

## **2.0 PROCESS OPERATIONS**

Brant Corrosion Control provides surface preparation and high performance, corrosion resistant protective coatings and linings to products. Following surface preparation and cleaning with steel grit abrasives, Brant Corrosion Control applies a wide range of rubber lining products, sprayed liquid coating and lining materials or powder coatings to a broad range of products. The range of coatings applied by Brant Corrosion Control include soft and hard natural rubber, neoprene, epoxy, polyurethane, polypropylene, nylon, Teflon, vinyl ester, zinc rich primers, among other coating materials.

Zinc is present in some of the coating materials used at the facility.

Large quantities of solvents, such as toluene, methyl ethyl ketone and xylene, are used in the preparation and coating processes. Some solvent losses occur through air releases. Toluene is used as a tackifier during the installation of linings at Brant Corrosion Control and it is assumed that all toluene evaporates off during the curing process. Waste solvents, such as methyl ethyl ketone and xylene, are sent off site for recycling. Overspray from paints and coatings are captured in filters in the coating booths. Used filters, after proper curing (drying), are disposed to local landfill.

The product p,p'-methylenebis(2-chloroaniline) is used at the facility for the manufacture of polyurethane. Basically, 100% of this material is transformed during the production processes. Any residues that may remain will be mixed with resin and disposed to landfill.

From blasting activities, fine particulate matter is released from the facility resulting in some losses to the atmosphere, and with the majority shipped off-site as grit blast waste.

### 3.0 TOXIC SUBSTANCES QUANTIFICATION

Quantification procedures used for the 2015 data were the same statistical procedures used in previous years. As such the specific details will not be described again in this document. For detailed calculations, please refer to the TRA Plan for that substance. The tables in each of the following sections summarise calculations for each of the reportable substances using 2015 data.

#### 3.1 Zinc

Zinc was first reported in 2011, but did not achieve the reporting threshold for the years 2012, 2013 nor 2014. The use of materials with zinc present remained low in 2015, such that this substance did not meet the NPRI reporting threshold of 10,000 kg in 2015. As such, it was not necessary to report zinc quantities to NPRI for 2015.

#### 3.2 Toluene

Toluene use dropped from a reported 7,374 kg use in 2014 to 5,990 kg in 2015, representing a 19% reduction. Toluene requires reporting as one of the speciated Volatile Organic Compounds (VOCs) whose use was greater than 1000 kg in combination with a total VOC use > 10,000 kg; where in 2015, the total VOCs used were 37,352 kg.

Stream	Value	Calculations
Enters	5.990 t	Mass balance calculation from purchasing records and MSDS information used to complete a facility spreadsheet that listed all components of raw materials used at Brant Corrosion Control. Total toluene into facility = sum of all toluene sources purchased.
Created	0	Toluene is not created in the process.
Transformed	0	Toluene is not destroyed or transformed in the process.
Released to air	5.990 t	Total released to air = total contained in purchased materials = 5.990 t
Transferred for recycling	0	There is no significant transfer of toluene with solvents shipped off-site for recycling.
With Product	0	Toluene is not contained in product shipped from the site.

The process flowsheet for toluene is provided at the end of the report.

#### 3.3 Xylene

Xylene requires reporting as one of the speciated Volatile Organic Compounds (VOCs) whose use was greater than 1000 kg in combination with a total VOC use > 10,000 kg; where in 2015, the total VOCs used were 37,352 kg.

<b>Table 3: Quantification of Xylene Use and Releases in 2015</b>		
<b>Stream</b>	<b>Value</b>	<b>Calculations</b>
Enters	7.452 t	Mass balance calculation from purchasing records and MSDS information used to complete a facility spreadsheet that listed all components of raw materials used at Brant Corrosion Control. Total xylene into facility = sum of all xylene sources purchased.
Created	0	Xylene is not created in the process.
Transformed	0	Xylene is not destroyed or transformed in the process.
Released to air	4.62 t	The total released to air = total purchased – total transferred off-site = 7.452 – 2.831 = 4.62 t
Transferred for recycling	2.831 t	Xylene transfer off-site represented an estimated 35% of the total waste solvent transferred off-site for recycling = 0.35 x 13,862 L x 0.88 <sup>1</sup> = 4.27 t. As this amount is more than the purchased amount, there is an issue with the assumed concentration. It was assumed that the entire amount of purchased xylene was discharged as waste solvent. The listed amount is the purchased amount.
With Product	0	Xylene is not contained in product shipped from the site.

The process flowsheet for xylene is provided at the end of the report.

### 3.4 4,4'-methylenebis(2-chloroaniline) (MOCA)

In 2015, 4,4'-methylenebis(2-chloroaniline) (MOCA) did not meet the reporting threshold to NPRI, therefore this substance's releases were not reported to the NPRI in 2015.

### 3.5 Isopropyl alcohol

In 2015, isopropyl alcohol (IPA) did not meet the reporting criteria as one of the speciated Volatile Organic Compounds (VOCs) whose use was greater than 1000 kg in combination with a total VOC use > 10,000 kg.

### 3.6 Methyl ethyl ketone

Methyl ethyl ketone (MEK) requires reporting as one of the speciated Volatile Organic Compounds (VOCs) whose use was greater than 1000 kg in combination with a total VOC use > 10,000 kg; where in 2015, the total VOCs used were 37,352 kg. Table 4 summarizes these quantities and calculations.

<b>Table 4: Quantification of Methyl Ethyl Ketone Use and Releases in 2015</b>		
<b>Stream</b>	<b>Value</b>	<b>Calculations</b>
Enters	15.851 t	Mass balance calculation from purchasing records and MSDS information used to complete a facility spreadsheet that listed all

<sup>1</sup> Specific Gravity of xylene = 0.88 kg/L

		components of raw materials used at Brant Corrosion Control. Total MEK into facility = sum of all MEK sources purchased.
Created	0	MEK is not created in the process.
Transformed	0	MEK is not destroyed or transformed in the process.
Released to air	8.842 t	The total released to air = total purchased – total transferred off-site = 15.851 – 7.009 = 8.842 t
Transferred for recycling	7.009 t	MEK transfer off-site represented an estimated 65% of the total waste solvent transferred off-site for recycling = 0.65 x 13,862 L x 0.8 <sup>2</sup> = 7.208 t. As this amount is more than the purchased amount, there is an issue with the assumed concentration. It was assumed that the entire amount of purchased MEK was discharged as waste solvent. The listed amount is the purchased amount.
With Product	0	MEK is not contained in product shipped from the site.

The process flowsheet for MEK is provided at the end of the report.

### 3.7 Particulate Matter less than 10 microns

In 2015, particulate Matter less than 10 microns (PM<sub>10</sub>) did not meet the reporting threshold to NPRI, therefore this substance's releases were not reported to the NPRI in 2015.

<sup>2</sup> Specific Gravity of MEK = 0.8 kg/L

#### 4.0 CONCLUSION

Mass balance calculations were performed to determine use, releases and material balance for the TRA-reportable substances at the Brant Corrosion Control facility. Table 6 provides a summary of the reportable amounts for the 2015 reporting year.

<b>Process Type</b>	<b>Toluene (tonnes)</b>	<b>Xylene (tonnes)</b>	<b>MEK (tonnes)</b>
Enters (total)	5.990	7.452	15.851
Created	0	0	0
Destroyed or Transformed	0	0	0
In/on product	0	0	0
Released, as Air Emission	5.990	4.62	8.842
Released, Transferred for Recycling	0	2.831	7.009
Released to water	0	0	0
Total outputs	5.990	7.452	15.851
Relative Imbalance	0 %	0 %	0 %

## 5.0 PUBLIC SUMMARY

Table 7 is a copy of the Public Summary for the reportable amounts for the 2015 reporting year.

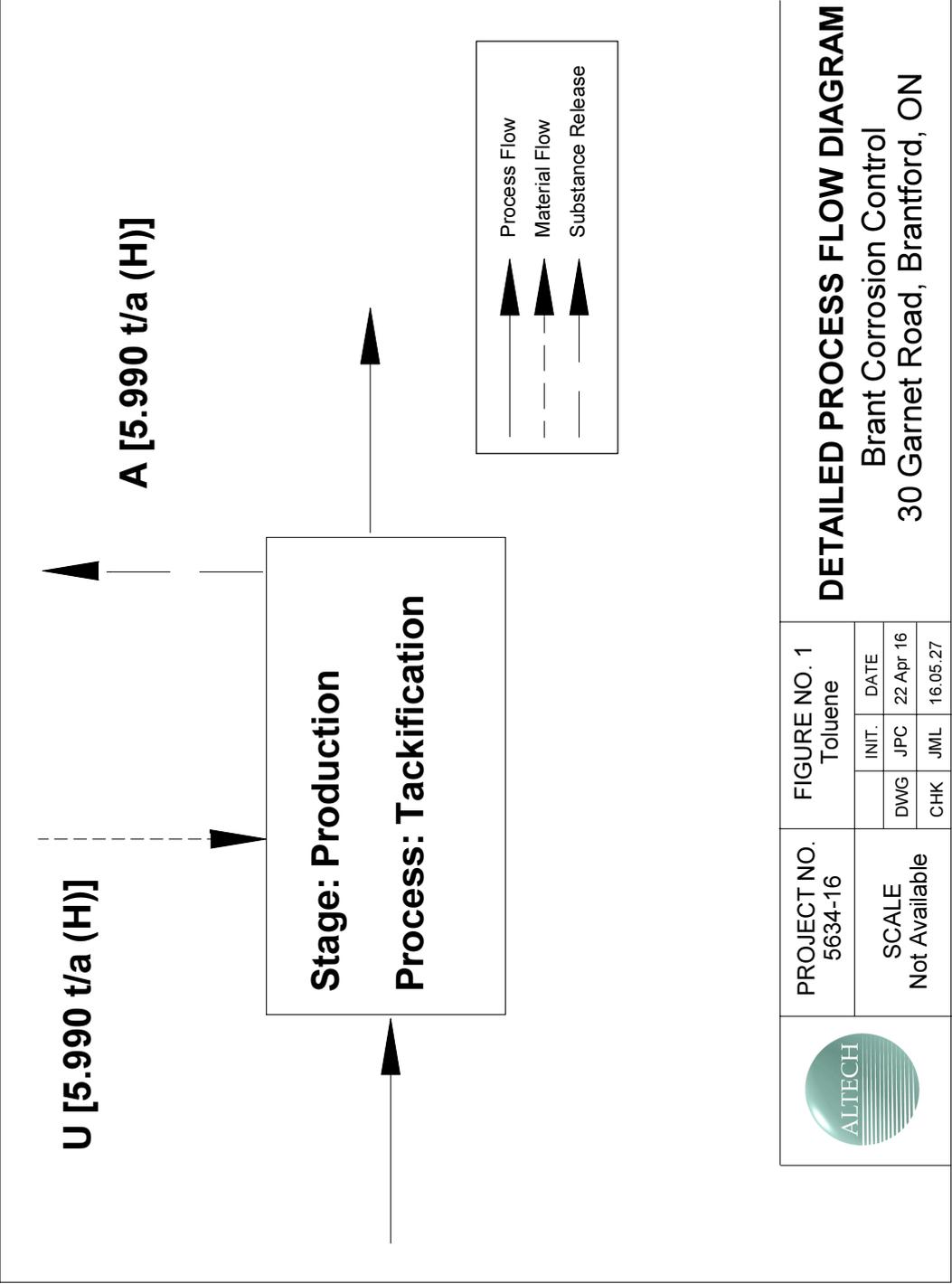
Substance	Used			Destroyed/Transformed			On Site Releases			Recycled Off Site		
	2014	2015	% Diff <sup>3</sup>	2014	2015	% Diff	2014	2015	% Diff	2014	2015	% Diff
Toluene	7.374	5.990	- 19%	-	-	-	7.374	5.990	- 19%	-	-	-
Xylene	7.909	7.452	-6%	-	-	-	5.194	4.62	-11%	2.715	2.831	4%
IPA	DNMC	DNMC	-	-	-	-	DNMC	DNMC	-	-	-	-
MEK	19.64	15.851	-17.2%	-	-	-	12.097	8.842	-12%	7.543	7.009	-22.8%
MOCA	28.50	DNMC	-	28.50	DNMC	-	0	DNMC	-	-	-	-
	Created			In Product			On Site Releases			Recycled Off Site		
	2014	2015	% Diff	2014	2015	% Diff	2014	2015	% Diff	2014	2015	% Diff
Zinc	DNMC	DNMC	-	-	-	-	DNMC	DNMC	-	DNMC	DNMC	-
PM <sub>10</sub>	DNMC	DNMC	-	-	-	-	DNMC	DNMC	-	-	-	-

DNMC = Did not meet criteria for reporting to NPRI & TRA.

Altech will report these amounts, where required, to Environment Canada and/or to the Ontario Ministry of Environment and Climate Change for the calendar year 2015 through the input forms on the SWIM web site. While the actual amounts were reported on the forms, a check box will be completed that requests Environment Canada and MOECC to report (if any) published amounts related to Brant Corrosion Control in quantity ranges (e.g. 0 to 10 tonnes, etc.), as shown in Table 7.

Brant Corrosion Control is required to keep this Toxic Substances Accounting report on file for presentation if requested by Ministry of Environment and Climate Change staff. It need not be produced for an inquiry by members of the public.

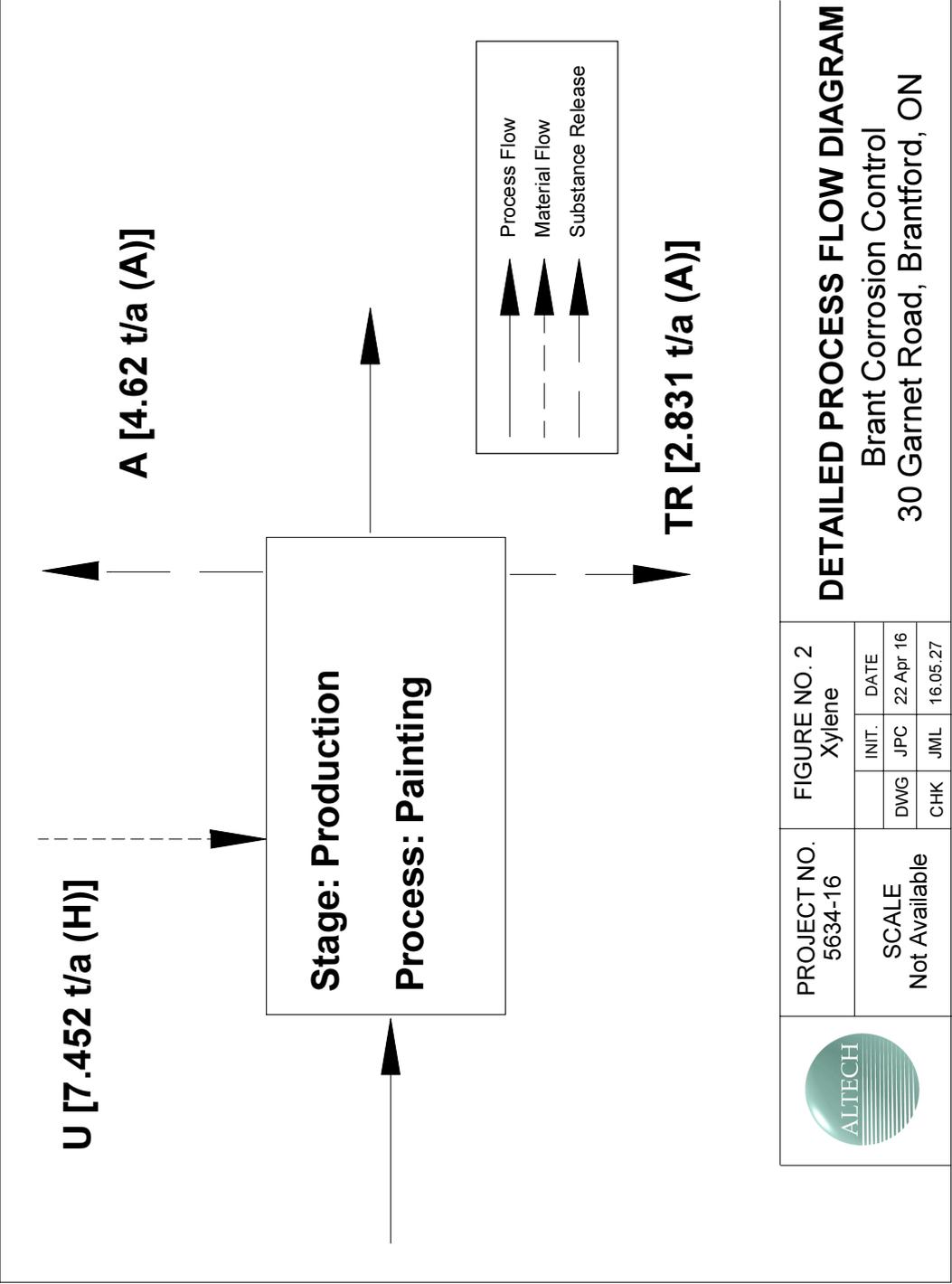
<sup>3</sup> % Diff = Difference in %



**DETAILED PROCESS FLOW DIAGRAM**  
 Brant Corrosion Control  
 30 Garnet Road, Brantford, ON

PROJECT NO. 5634-16	FIGURE NO. 1 Toluene	
	INIT.	DATE
SCALE Not Available	DWG CHK	JPC JML
		22 Apr 16 16.05.27



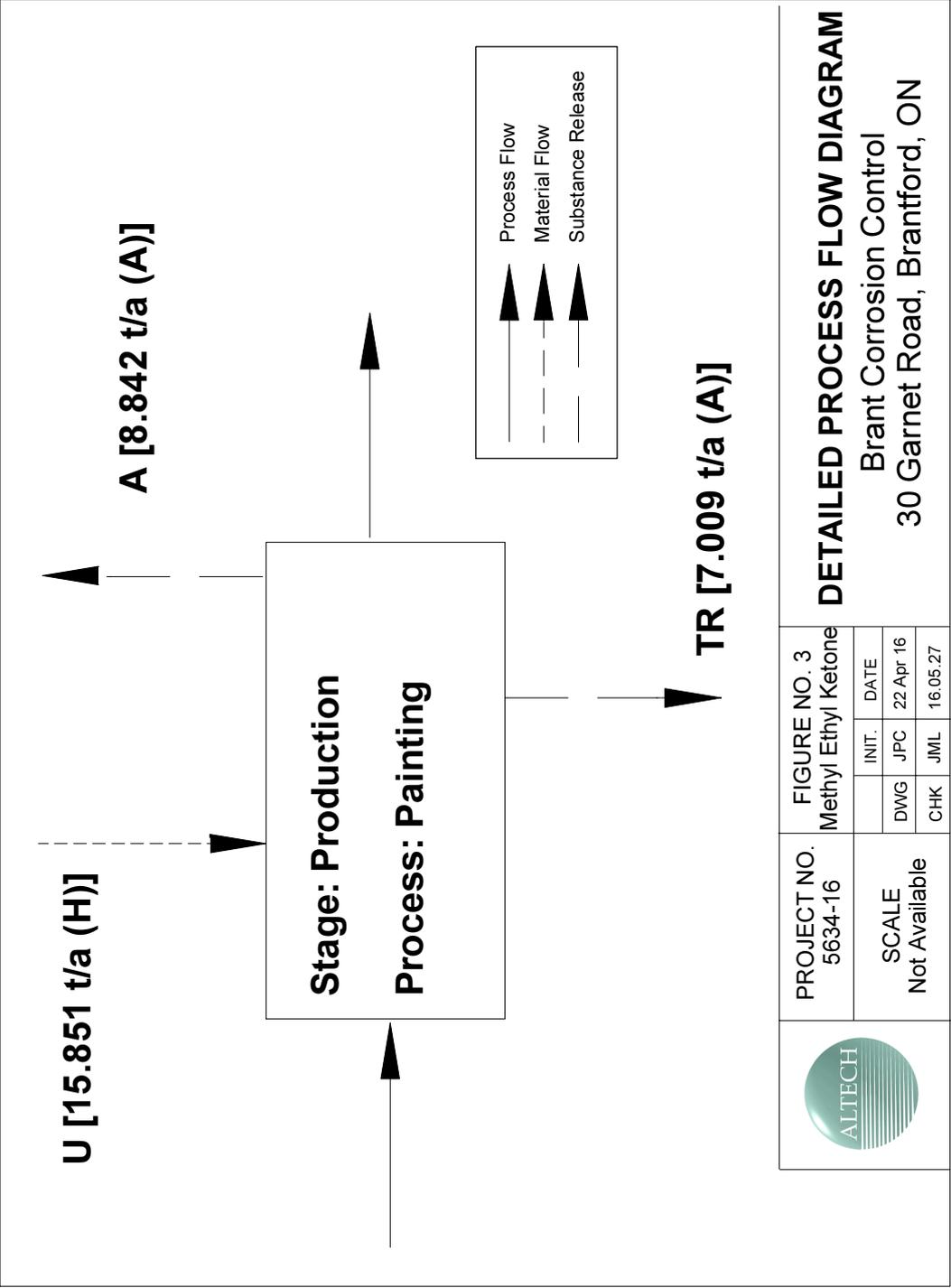


**DETAILED PROCESS FLOW DIAGRAM**  
 Brant Corrosion Control  
 30 Garnet Road, Brantford, ON

FIGURE NO. 2		Xylene	
INIT.	JPC	DATE	22 Apr 16
DWG	CHK	JML	16.05.27

PROJECT NO.	5634-16
SCALE	Not Available





	<b>PROJECT NO.</b> 5634-16	<b>FIGURE NO. 3</b> Methyl Ethyl Ketone			
	<b>SCALE</b> Not Available	INIT. JPC	DATE 22 Apr 16	DWG CHK	JML 16.05.27
<b>DETAILED PROCESS FLOW DIAGRAM</b> Brant Corrosion Control 30 Garnet Road, Brantford, ON					