

OxyVinyls Canada Co.  
Niagara PVC Plant  
8800 Thorold Townline Rd.  
Thorold, ON L2E 6V9

Toxics Reduction Plan Summary

for

Sulphuric Acid (CAS # 7664-93-9)

per

O.Reg. 455/09

December 29, 2012

**Facility Information** (per O.Reg.455/09, s.18. (2))

1. Substances:  
The following Phase 1 substances are included in this Plan Summary:

<u>Name</u>	<u>CAS Registry No.</u>
Sulphuric Acid	7664-93-9
2. NPRI Identification No: 5762
3. MOE Identification No per O.Reg. 127/01: 5294
4. Legal Name and Address:   Street: OxyVinyls Canada Co.  
8800 Thorold Townline Rd.  
Thorold, ON L2E 6S5  
  
  Mailing: OxyVinyls Canada Co.  
P.O.Box 1027  
Niagara Falls, ON L2E 6V9
5. Full Time Employees: 91
6. NAICS Code: 325210
7. Company Contact: Don Davidson - Plant Manager  
Tel: 905-374-5601
8. Technical Contact: Ron Morettin - HESS Team Leader  
Tel: 905-374-5669
9. Plan Coordinator: Ron Morettin
10. Plan Preparation: Ron Morettin
11. Highest Ranking Employee: Don Davidson
12. Addresses of Contacts: Same as 4.
13. Plant Location (UTM):   Zone: 17T  
  Easting: 648800  
  Northing: 4767600  
  Latitude: 42.98100  
  Longitude: -79.26660
14. Canadian Parent Company: Occidental Canada Holdings Ltd.  
Charles S. Reagan  
Suite 900  
1959 Upper Water Street  
Halifax, Nova Scotia B3J 2X2

### **Statement of Intent**

Oxy Vinyls Canada Co. is required under O.Reg. 455/09 to develop Toxic Reduction Plans for Phase 1 substances by December 31, 2012.

Oxy Vinyls Canada Co. is committed to reducing the use, creation, or transfer of toxic substances in its processes where feasible and economically viable.

### **Objective**

The objective of this Toxic Reduction Plan is to identify the toxic substances used, created, or transferred, how they are used, created, or transferred, where they are used, created, or transferred, and how their use, creation, or transfer can be reduced or eliminated.

### **Description of Substance Use or Creation**

Sulphuric acid is used in water treatment for regeneration of demineralizer ion beds and in cooling towers for pH control. 100% of the sulphuric acid used is destroyed by neutralization in these processes.

### **Contents of Plan Summary Reflects Plan**

This Plan Summary for sulphuric acid accurately reflects the Toxics Reduction Plan dated December 19, 2012.

## **Options To Be Implemented**

### **Material or Feedstock Substitution** - No option identified

There is no economic substitute for sulphuric acid for regeneration of demineraliser ion beds and for cooling water pH control. Sulphuric acid is the standard for this process.

### **Product Design or Reformulation** - No option identified

Sulphuric acid cannot be redesigned or reformulated.

### **Equipment or Process Modifications** - Two options identified

Upgrading the demineraliser ion beds on a 4 to 5 year cycle extends the capacity of the ion beds resulting in fewer regenerations required per volume of demineralized water produced.

Installation of additional reverse osmosis (RO) units to supplement demineralised water production, thus reducing the demand from the demineralizers.

### **Spill and Leak Prevention** - No option identified

Sulphuric acid spillage and leakage is insignificant. The storage tanks are monitored and protected from overflowing and are in a containment dyke.

### **On-site Reuse or Recycling** - No option identified

Sulphuric acid is completely consumed in the demineraliser regeneration and cooling tower process. Reuse and recycling does not apply to this process.

### **Improved Inventory Management or Purchasing Techniques** - No option identified

Current inventory management and purchasing techniques are consistent with the process requirements. Sulphuric acid is delivered on an as needed basis.

### **Training or Improved Operating Practices** - No option identified

All operating personnel in the plant are fully trained to operate the demineraliser and cooling water systems and are required to maintain up to date training by periodic recertification on the procedures. As operating practices are improved, procedures are updated and the operating personnel are required to train and compete certification on the new procedures. Addition of sulphuric acid to the processes is done automatically.

## **Feasibility of Reduction Options**

### **Equipment or Process Modifications**

The demineralizer ion beds were upgraded in 2011 at a cost of approximately \$60,000. The ion beds will continue to be upgraded approximately every 4 to 5 years, as necessary.

An RO system was installed in 2004 to produce approximately 30% of the demineralised water requirements for the plant, resulting in a reduction in sulphuric acid used. In 2007 and in 2011, the membranes for the reverse osmosis unit were replaced at a cost of approximately \$40,000 each time. This resulted in an increase in demineralizer run lengths and a reduction in regenerations, higher demineralised water capacity and an overall reduction in sulphuric acid usage by approximately 40,000 kgs. Plans for additional RO capacity are being reviewed. Complete conversion from demineralizer ion beds to RO units is not possible as demineralizer water quality from RO units alone cannot meet the stringent specifications required for PVC production. However, it is estimated that RO can supply approximately 70% of the plant demineralised water needs within the next 5 years.

## **Economic Feasibility of Reduction Options**

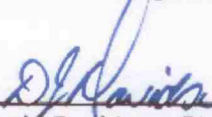
### **Equipment or Process Modifications**

Demineralized water is necessary for the production of PVC resin and the service life of the demineralizer resin beds is 4 to 5 years. Consequently, the cost of upgrading the demineralizer ion beds every 4 to 5 years is a cost of doing business and is beyond economic feasibility studies.

The cost of additional RO units to meet the plant needs is approximately \$500,000, based on the cost of installing the existing RO unit. The savings in sulphuric acid would be approximately \$63,000 per year or 240,000 kg per year. The simple payback for installing additional RO units is 8 years which does not make this alternative feasible at this time. However, Oxy Vinyls is pursuing other opportunities for used RO units in order to reduce sulphuric acid consumption. No cost estimates or economic feasibility study is available at this time.

**Certification by Highest Ranking Employee**

As of DECEMBER 20, 2012, I, Donald Davidson, certify that I have read the toxic substance reduction plan for sulphuric acid 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.

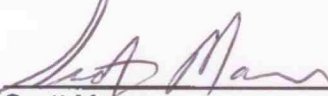
  
\_\_\_\_\_  
Donald Davidson, Plant Manager  
Oxy Vinyls Canada Co.

12/20/2012  
\_\_\_\_\_  
Date

**Toxic Substance Reduction Planner**

As of 12/21/2012, I, Scott Manser, certify that I am familiar with the processes at Oxy Vinyl Canada Co.'s Niagara Falls facility that use or create the toxic substances referred to below, that I agree with the estimates referred to in subparagraphs 7 iii, iv and v of subsection 4 (1) of the **Toxics Reduction Act, 2009** that are set out in the plan dated December 19, 2012, and that the plan complies with that Act and **Ontario Regulation 455/09 (General)** made under that Act.

Sulphuric Acid CAS#7664-93-9

  
\_\_\_\_\_  
Scott Manser  
Toxic Substance Reduction Planner

TSRP0071  
\_\_\_\_\_  
License Number

12/21/2012  
\_\_\_\_\_  
Date