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**GUIDELINE**

*for the*

**ENVIRONMENTAL MANAGEMENT**

*of*

**TIN STABILIZERS**

*in Canada*

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Developed in conjunction with a group of vinyl processing facilities, manufacturers of tin stabilizers and vinyl compounding facilities using tin stabilizers

April 2020

Although the participants in the development of this Guideline believe that the information it contains is factual, it is not intended as a statement of legal requirements with respect to the handling of tin stabilizers. Consult with legal counsel, regulatory specialists and/or appropriate government authorities to ensure compliance with local, regional, national and international laws and regulations. It is the user's responsibility to ensure that proprietary rights and existing laws are observed. No warranty or representation, either expressed or implied, is made with respect to any or all of the content of this document, and the participants in its development do not assume any legal responsibility whatsoever.

# TABLE OF CONTENTS

Preface.....	iii
Introduction .....	iv
1. Applicability.....	1
2. Glossary of terms and key definitions.....	1
3. Packaging.....	2
4. Storage.....	2
5. Handling and dispensing .....	4
6. Rinsing tanks, totes, drums or lines.....	4
7. Reusable packaging.....	4
8. Spills.....	5
9. Waste disposal.....	6
10. Management system.....	7
11. Documentation.....	8

## Appendices

A	Waste disposal location guidelines
B	Package reclamation and disposal site guidelines
C	Tin stabilizer handling process flow chart and potential environmental releases of tin stabilizers
D	Participants in the development of this Guideline
E	Template letter to be forwarded to the waste disposal company
G	Annual report on compliance with the Guideline for the Environmental Management of Tin Stabilizers in Canada

## Preface

Tin stabilizers have been used in the processing of rigid vinyl (PVC and CPVC) products since the mid-1960s. Tin stabilizers are the most effective type of heat stabilizers that are used in vinyl applications. Because of this and the continued growth of vinyl products in Canada, the overall volume of tin stabilizers used in vinyl processing has risen over the past years. In addition, the methods of handling tin stabilizers have evolved into more efficient, automated and safer systems.

This Guideline has been developed to support all of these changes and to ensure the continued safe, proper and efficient use of tin stabilizers.

Tin stabilizers are part of a diverse family of compounds called “organotins”. Tin stabilizers are made from mono- and dialkyltins (monomethyltins, monobutyltins, monooctyltins, dimethyltins, dibutyltins and dioctyltins) which are substantially different from trialkyltins (used as biocides) in toxicological behaviour.

This Guideline addresses in-plant handling methods for tin stabilizers and also the management of tin stabilizer packaging. The practices and procedures outlined in this Guideline are designed to ensure that tin stabilizers do not enter the aquatic environment during use (receiving, storage, handling and dispensing) or through the disposal of materials, by using prevention measures to avoid spills and/or releases to municipal sewer systems, municipal stormwater collection systems and other water treatment systems, receiving waters or surface watercourses.

This Guideline is a voluntary stewardship initiative and in partnership with the Vinyl Institute of Canada (VIC) and industry users of tin stabilizers.

The elements of this Guideline are based on refinements of the 2006, 2015 and 2018 Guidelines.

**The overall goal of this Guideline is to prevent any release of tin stabilizers to the environment, because certain tin stabilizer products may cause harmful effects to aquatic organisms if allowed to enter the aquatic environment.**

If you have any questions or require further information about the content of this Guideline, please refer to the contact information in Appendix D.

## **Purpose**

The goal of this Guideline is to prevent the release of tin stabilizers to the environment by ensuring that these substances and their packaging materials are handled, stored, used and disposed of in a responsible manner.

## **Introduction**

PVC, poly vinyl chloride and vinyl are all names given to a widely used polymer/resin. PVC resin can be formulated into a broad spectrum of end-product uses. CPVC is a more highly chlorinated variant of PVC that also uses tin stabilizers.

Vinyl products generally fall into two categories: flexible and rigid.

Flexible vinyl products include floor and wall coverings, automotive interiors, liners for swimming pools and other containers (as found in municipal landfills), edge banding for furniture and skirting, jacketing for wiring and cables, toys, packaging, and medical devices (such as blood bags and tubing).

Rigid end uses, the majority of which are focused in the construction sector, include sewer pipes, water pipes, pipe fittings, window frames, doors, building systems, siding and eavestroughs.

Vinyl is a heat-sensitive material. It must therefore be formulated to meet the end-product specifications and to withstand the various processing stages to which the polymer is subjected. Typically, heat and shear are applied in these processing stages. Exposure of the vinyl to high temperatures for a long period of time can create degradation. If the vinyl is allowed to degrade during processing, hydrochloric acid (HCl) may be released and will act as a catalyst to further degrade the vinyl compound. Heat stabilizers are required in the vinyl formula to scavenge HCl and protect the vinyl from the heat of processing. Tin stabilizers are the most effective type of heat stabilizer in specific applications.

The process stages can include:

- Blending
- Pelletization
- Extrusion
- Injection moulding
- Calendering
- Blow moulding
- Thermoforming

(See Appendix C – Tin stabilizer handling process flow chart and potential environmental releases of tin stabilizers.)

As an example, a blister-packaging product can involve four of these processing stages. Each stage involves some form of heat and shear, hence the requirement for a heat stabilizer in the vinyl compound.

Pure PVC is manufactured as a resin in powder form. The other components in the formula can be liquids or powders. When the basic components are blended together, the mixture becomes the vinyl compound. The vinyl compound is typically in powder or pellet form, but may also be a liquid for some specific applications. The vinyl compound is then further processed into a vinyl product.

To make powder vinyl compounds, the two typical methods of blending are the low-shear, low-temperature ribbon blender or the high-shear, high-intensity mixer, which creates higher temperatures. The high-shear system has a shorter blending time to disperse the various components in the vinyl compound. Liquids are absorbed by the PVC resin, while the other additives (lubricants, fillers, colourants and other powder components) are mechanically dispersed in the resin. Automatic or manual dispensing operations involving the tin stabilizers occur during these compounding steps. During blending, the tin stabilizers are absorbed by the PVC resin and becomes an integral part of the vinyl compound. Although the tin stabilizers are typically a liquid, it can sometimes be dispersed in a carrier to make a powder.

Tin stabilizers, whether liquid or solid, are high-boiling-point materials and therefore have low volatility. They are sensitive to light and moisture and need to be kept dry. In addition, while they can be in contact with stainless steel, they need to be kept out of contact with iron and iron oxide (rust).

Vinyl production has grown significantly in Canada. Tin stabilizers have played an important role in this growth due to their effectiveness. Currently, just over 30 facilities across Canada compound vinyl and use tin stabilizers. The facilities receive the tin stabilizers in various packaged forms. The high percentage of bulk and semi-bulk packages is an indication of the industry's efforts to minimize handling and environmental risk.

## 1.0 Applicability

This Guideline applies to all vinyl compounding facilities using tin stabilizers in Canada.

## 2.0 Glossary of terms and key definitions

Absorbent: A powder or granular material that has a high capacity to absorb and retain liquids.

Aquatic: Relating to the water environment.

Bulk bag (semi-bulk bag): A woven polypropylene bag that holds large quantities of solid materials, e.g. 1,000 kg.

Bulk tank: An aboveground tank in which large quantities of liquid are stored, e.g. 20,000 kg.

Compound mixer: A machine that blends the components of a formula in a low- or high-shear manner.

Compounding: The mixing of various components to produce a material for subsequent processing into products.

Dike: A raised area around a tank (or other container) to contain and prevent the contents of the tank or container from leaving the area in the event that the tank or container leaks.

Drum: A container used to hold product, e.g. 220 kg.

Designated handler: Usually the supplier or a company designated by the supplier to handle the empty tin stabilizer packaging. For cases where designated handlers are not used, the provisions of section 8 should be followed.

Emissions: Gaseous, liquid or solid releases to the environment.

Environment: Ambient air, water or land.

Facility: A manufacturing plant where vinyl compounding is performed.

Hose: A flexible tube for carrying or transferring liquids.

Leak: The unintentional release of any material into or out of a container or closed system.

Municipal waste: Any waste, whether or not it is owned, controlled or managed by a municipality, excluding hazardous waste, liquid industrial waste or gaseous waste (but including waste from residential, industrial, commercial and institutional sources).

Municipal waste landfill: A provincially certified landfill site reserved for the disposal of municipal waste.

Rinsate: The residue resulting from the cleaning of a container or piping system.

Tin stabilizers: Specific tin compounds used in formulating vinyl materials.

Tote (semi-bulk container): A large moveable container that can contain liquids, typically 1,000 kg (also called intermediate bulk container or IBC).

Transfer line: A connection from one vessel to another, typically through a pipe or a hose.

### 3.0 Packaging

Tin stabilizers are commercially available in different types of packaging.

**Liquids** can be shipped to the facility by bulk trucks (20,000 kg), which are typically dedicated, or in totes (1,000 kg), drums (220 kg) and small pails (20 kg or less). Totes are usually reused, recycled, or disposed of according to subsection 9.2. Drums and pails, which represent a very small part of overall consumption in the Canadian industry, are normally one-way containers and are disposed of by the end user of the tin stabilizer, as per subsection 9.2 of this Guideline.

**Powders** may be in semi-bulk bags (1,000 kg) or small bags (20–25 kg). Semi-bulk bags can be returnable or one-way. Small bags are one-way.

The type of packaging determines the method by which the tin stabilizers are stored and introduced into the blending system.

### 4.0 Storage

Liquid tin stabilizers are sensitive to moisture and contamination by iron. Long-term exposure to light may also have a negative effect on some tin stabilizers. Store all packages well away from sources of flame or heat. Storage tanks, totes, drums and pails containing tin stabilizers should be inspected for leaks, structural integrity and any sign of deterioration on a routine basis. Review the tin stabilizer MSDS to check for potential incompatibility with other stored materials.



Accidental spills should be prevented. Drums and totes need to be protected during storage and use to prevent containers from being accidentally damaged by mechanical devices or vehicular traffic. Potential releases of tin stabilizers through improper drainage to the environment should be prevented by using dikes or spill pallets, closing floor drains, etc.

#### **4.1 Bulk**

Construction materials for bulk storage tanks can be stainless steel, aluminum, high-density polyethylene (HDPE) or lined carbon steel. Care must be taken to ensure that the lining is compatible with the tin stabilizer. If in doubt, check with the tin stabilizer supplier.

Some bulk storage tanks are located indoors and are vented inside the facility. Air monitoring in process plants has confirmed that, because of the low volatility of tin stabilizers, there is little or no emission to the ambient atmosphere in the facility. Some exposure to humidity exists, but with reasonable inventory turnover, there is no negative effect on tin stabilizer quality. In the case of extended storage with no use, care in sealing the vessel against humidity is advisable.

All bulk storage tanks should be placed inside a dike in accordance with bulk storage guidelines. The latest guidelines from the Ontario Ministry of the Environment, Conservation and Parks are dated May 2007 and can be accessed at <http://www.ontario.ca/environment-and-energy/guidelines-environmental-protection-measures-chemical-and-waste-storage>. The guidelines advise that the capacity of the dike should be the greater of 110% of the volume of the largest tank or 100% of the volume of the largest tank plus 10% of the aggregate volume of all remaining tanks. Tin stabilizer users outside Ontario should check whether their provincial environment department has relevant guidelines; otherwise, the Ontario bulk storage guidelines should be followed. The dike should be constructed and maintained so as to eliminate the possibility of unintentional releases of tin stabilizers to the environment in the event of tank failure and should be kept clean to prevent contamination by any other material in the dike. The dike prevents material loss and allows recovery and reuse.

For bulk tanks venting to outdoors, check the requirements of the applicable provincial regulations in case a permit or Certificate of Approval is required.

#### **4.2 Totes**

Typical construction materials for totes are stainless steel, aluminum and HDPE. Ensure that the tote is well sealed before and after use to prevent contact with humidity. Store totes in a designated indoor area and protect them from damage by mechanical devices, vehicular traffic and heat or flame.

### 4.3 Drums and pails

These are typically HDPE or steel containers with an interior coating to protect the tin stabilizers from contamination with rust. Ensure that containers are sealed when not in use. Protect them from weather and from damage by mechanical devices, vehicular traffic and heat or flame.

### 5.0 Handling and dispensing

Transfer lines to and from storage tanks, totes or drums should be made from stainless steel tubing/piping or special chemical transfer hoses. All hoses should be compatible with the tin stabilizers. Proper precautions should be exercised to prevent spills when transferring from drum to drum, tote to tote, bulk truck to tote, etc. Adequate containment, such as drip pans, is required to prevent residual product drips from valves and connections from entering the environment. Transfer lines, pipes and hoses should be periodically inspected to ensure there are no leaks.

Transfers from bulk trucks should be constantly attended, and audible alarms should be used to ensure that action can be taken immediately if a transfer line is breached or a tank is filled to capacity. Bulk unloading procedures should include a reference to required spill prevention measures and appropriate spill containment steps.

### 6.0 Rinsing tanks, totes, drums or lines

Rinsing of tin stabilizer transfer lines is not typically required. **Water is not the recommended material for rinsing or purging the line, because it is not compatible with vinyl processing.**

In the event that a transfer line requires purging before a change in the tin stabilizers is made, a tin stabilizer-compatible liquid such as epoxidized soybean oil (ESO) is recommended. Any ESO or vinyl-compatible rinsate generated from rinsing a transfer line, tote, drum or pail should be recycled back into a vinyl compound.

### 7.0 Reusable packaging

Totes and drums can be reused, recycled, or disposed of depending on supplier and user circumstances. After the contents have been used, and before the packaging is returned to a designated handler, it is important to properly seal the empty package. This includes, but is not limited to, closing valves, caps, lids, etc. to prevent loss of residual product from the package to the environment. This also eliminates the possibility of foreign materials or objects entering the container, which could have an adverse effect on the reuse of the package. The empty packaging should also be stored in accordance with section 4.

In most cases, reusable totes are managed by the supplier. Contact information is available on the container or from the stabilizer supplier.

Store all packaging correctly and, when returning it to the supplier or designated handler, ensure that the previous contents of the packaging (i.e. TIN STABILIZERS) are indicated on the bill of lading.

## **8.0 Spills**

In the event of a spill of tin stabilizers, the company should immediately take all necessary measures to contain and prevent any release into the environment. The first priority is to minimize the amount of the spill and to cover all drains in the surrounding area. Isolate or interrupt the flow by immediately closing a valve, rotating a drum or transferring the contents to minimize the spill. It is advisable to keep a spill kit and an empty tote or drum available and accessible near high-risk areas for transfer purposes.

For product that may be on the floor, PVC resin or industrial absorbent can be used to contain and absorb the spill. PVC powder is an ideal medium for soaking up small spills and can be incorporated into a vinyl compound for further processing. All spills and liquid waste should be collected and either recycled or placed in a sealed container labelled "Waste for disposal – contains tin stabilizers" prior to disposal in accordance with section 9.

If a spill of tin stabilizers enters the environment, promptly follow the containment and reporting procedure set out in section 10.

In addition, the company must notify the appropriate federal, provincial/territorial or municipal authorities in accordance with applicable legislation. With respect to federal requirements, in the event of a spill or environmental emergency, the following Government Canada website provides information on when to report and who to notify: <https://www.canada.ca/en/environment-climate-change/services/environmental-emergencies-program/contacts-province.html>

The following spills will be tracked by the facility and will be noted in the Annual Report on Compliance form, (Appendix G):

- spill is reportable under provincial regulations
- spill is off-site (any volume)
- spill is on-site (any volume) and has not been cleaned up (acceptable clean-ups have no adverse impact on the environment)

All operations are encouraged to track all spills and to document the cause, response, and steps taken to prevent a recurrence. Attention to patterns in these data will allow for improvement in manufacturing practices.

## 9.0 Waste disposal

Currently, most tin stabilizers are not regarded as hazardous substances and are therefore not subject to hazardous waste handling regulations in most provinces. However, concerns about tin stabilizers being released to the environment are very real.

As noted on page iii, *“the overall goal of this Guideline is to prevent any release of tin stabilizers to the environment, because certain tin stabilizer products may cause harmful effects to aquatic organisms if allowed to enter the aquatic environment.”*

To comply with this Guideline, waste containing tin stabilizers shall not be disposed of at a municipal waste landfill site. Facilities should dispose of any waste containing tin stabilizers at a landfill or incinerator that is certified to handle hazardous materials. Below are two known sites in Canada equipped to handle hazardous materials:

Clean Harbors Canada Inc.  
4090 Telfer Road, Rural Route #1  
Corunna, ON N0N 1G0  
Phone: 519-864-3970  
<https://www.cleanharbors.com/location/corunna-industrial-services>

Swan Hills Treatment Centre  
Mail Bag 1500  
Swan Hills, AB T0G 2C0  
Phone: 780-333-4197  
<http://www.shtc.ca/>

### 9.1 Material

Spilled material and liquid waste must be collected and placed in a sealed container for later reuse or disposal. Where possible, non-aqueous rinsate, recovered solids or spilled material should be reused in the manufacturing process. If reuse is not possible, these materials should be collected, properly packaged and disposed of at a suitable waste facility.

In the unlikely event that tanks, totes, drums or lines are cleaned with water at a compounding facility, the aqueous rinsate from this process must be collected and stored in suitable packaging, such as a used tote or drum, for later disposal.

Solid waste containing tin stabilizers, such as absorbent, should be collected and stored in a sealed container for later disposal.

Liquid waste, including rinsates, will require a manifest for lawful transfer and disposal in most Canadian jurisdictions. Such rinsate must be assigned the correct waste number (e.g. 252 L (Oily Water) in Ontario).

**Under no circumstances should any water rinsate or other liquid rinsate be disposed of in municipal sewer systems, municipal stormwater collection systems and other water treatment systems, receiving waters or surface watercourses.**

## **9.2 Non-reusable packaging**

### **Do not dispose of non-reusable packaging at municipal waste landfill sites.**

Close the package properly once the contents have been used. Because the shipment of empty containers does not require special permits, only reputable packaging disposal and recycling companies should be used. These companies should be required to demonstrate that their rinsate is not released into the aquatic environment. (See Appendix A for guidelines on selecting these companies.) If recycling is not feasible, the packaging should be disposed of at a hazardous waste facility as described in this section. When shipping these containers, make sure the bill of lading reflects the original contents of the packages to ensure that they are dealt with correctly.

Criteria for waste disposal may vary from province to province. Waste haulers, receivers of cleanup products after a spill, or companies accepting empty packaging and/or contaminated items may need to have appropriate permits to handle these materials. It is the responsibility of the facility using tin stabilizers to ensure that the contracted waste management provider is operating under the necessary authority.

Depending on the nature of the waste product, the facility may also need to have a waste generator number. (See Appendices A and B for guidelines to be considered in selecting an appropriate disposal site.)

## **10.0 Management system**

All facilities using tin stabilizers must have a set of work instructions for these materials, with appropriate documentation. These work instructions will address the following:

- Tin stabilizers receiving, storage and handling procedures
- Health and safety and other relevant training
- Handling of empty packaging
- Waste material collection, storage and disposal procedures
- Spill containment and spill reporting procedures

## **11.0 Documentation**

The following records will be kept at the facility using tin stabilizers for a minimum of two years or the duration required under provincial regulations. This will facilitate annual reporting to the VIC, which will demonstrate to stakeholders that this Guideline is being followed.

- A copy of the waste manifest, if applicable, showing the date, amount, waste class and receiver of any rinsate or liquid waste containing tin stabilizers
- A copy of the paperwork and bill of lading showing the date, number of items and designated receiver of any solid waste containing tin stabilizers (absorbent materials, rags, contaminated clothing, etc.)
- A copy of the paperwork and bill of lading relating to the return of the returnable packaging (i.e. non-bulk) to a supplier showing the date, number of pieces and designated receiver
- A copy of the paperwork and bill of lading relating to the shipment of waste packaging, showing the type and number of items, the original product in the waste packaging and the designated receiver
- Where applicable, documentation to verify that the receivers of the rinsate, waste materials, waste non-reusable packaging or returnable packaging meet the regulatory requirements and the intent of this Guideline (see Appendix E for a template letter to be forwarded to waste disposal company).
- Documentation related to spill notification and reporting requirements for releases of tin stabilizers to the environment, identifying the date, amount, cause and corrective action

The VIC will consolidate the annual reports and provide a consolidated compliance report to Environment and Climate Change Canada.

## **Appendix A**

### **Waste disposal location guidelines**

Requirements vary by province. Check the provincial regulations as well. Typical certificates that the site might have are:

- Certificate of Approval – Waste Carrier
- Certificate of Approval – Waste Receiver
- Certificate of Approval – Waste Generator (also for the compounding facility)

It is the responsibility of the compounding facility to verify that the waste carrier and disposal site have suitable permits, depending on the waste product and province.

## Appendix B

### Package reclamation and disposal site guidelines

Requirements will vary by province. Check the provincial regulations. Typical certificates that the site might have are:

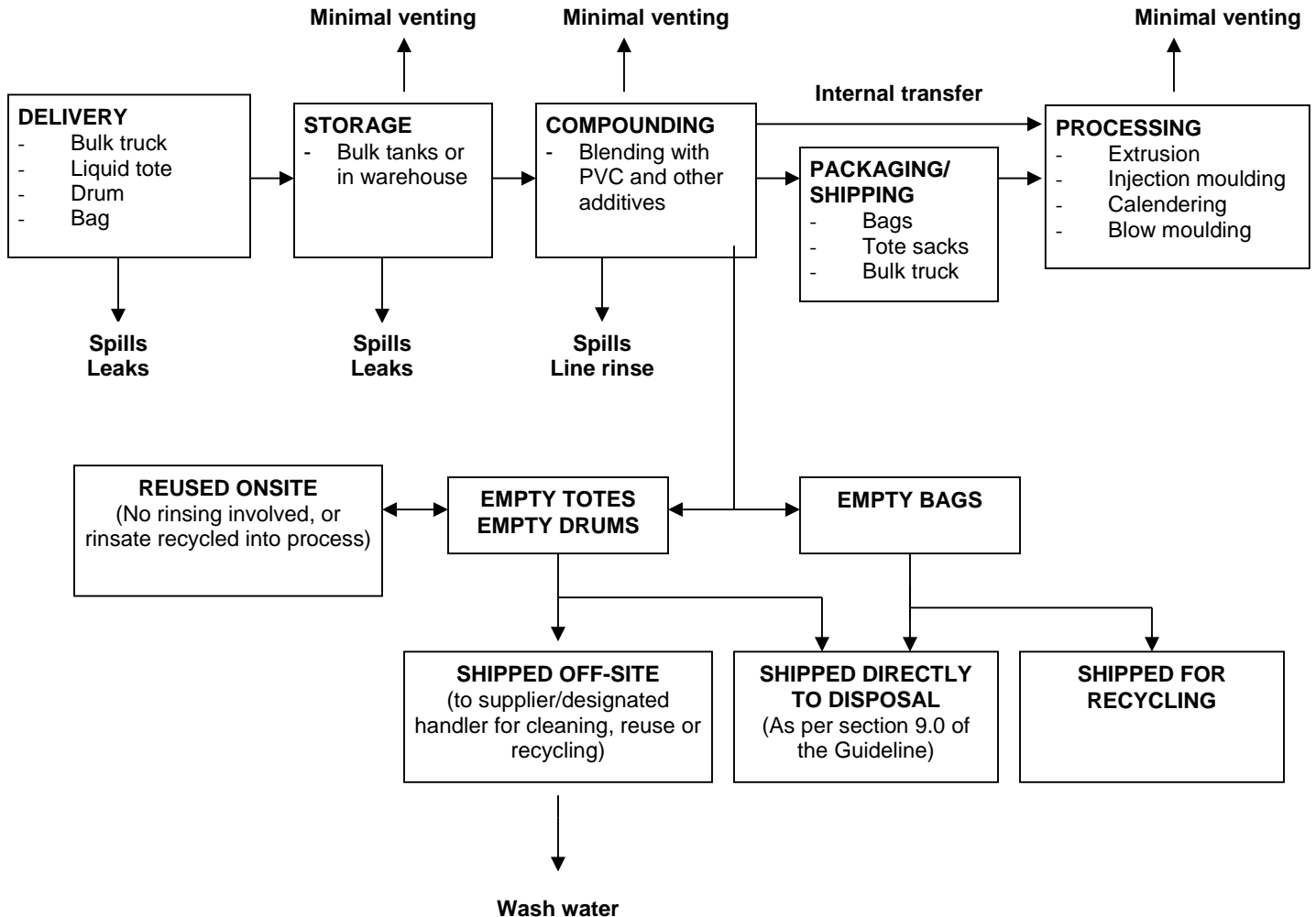
- Provincial Ministry of Environment – Certificate of Approval (Air)
- Provincial Ministry of Environment – Waste generator registration number, including waste stream and waste number
- Provincial Ministry of Environment – Provisional Certificate of Approval for a waste disposal site
- Transport Canada, Safety and Security, Dangerous Goods – Certificate of registration pertaining to standard CAN/CGSB-43.146-2016 “Design, manufacture and use of intermediate bulk containers for the transportation of dangerous goods, classes 3, 4, 5, 6.1, 8 and 9” (<https://www.tc.gc.ca/eng/tdg/moc-ibc-cgsb43146-361.html>)
- Transport Canada, Safety and Security, Dangerous Goods – Certificate of registration pertaining to standard CAN/CGSB-43.126-2019 “Reconditioning, Remanufacturing and Repair of Drums for the Transportation of Dangerous Goods” (<https://www.tc.gc.ca/eng/tdg/moc-smoc-cgsb43126-360.html>)
- Insurance coverage
- Workplace Safety and Insurance Board (WSIB) – Clearance certificate
- Management system for the safe handling and disposal of containers and recycled packages

It is the responsibility of the compounding facility to verify that the waste package receiver has all appropriate permits.



## Appendix C

### Tin stabilizer handling process flow chart and potential environmental releases of tin stabilizers



#### NOTES

Site measurements indicate that losses due to venting are minimal.

Storage tanks, process vessels, transfer lines, etc. are very rarely, if ever, washed with water.

If the compounding is done at the same site as the processing then the compound is internally transferred to the processing area, without release to the environment.

After processing, the tin stabilizers are fused within the PVC matrix. Any potential losses to the environment will be insignificant.

## **Appendix D**

### **Participants in the development of this Guideline**

This is a continuation of the Canadian vinyl industry's efforts in support of the responsible management of tin stabilizers. For the names of specific industry participants, see contact information below.

Contact information for stakeholder follow-up:

Aiñe Curran  
President and CEO  
Vinyl Institute of Canada  
1425 North Service Road East, #3  
Oakville, ON L6H 1A7  
Phone: 416-890-5553  
Email: [aine@vinylinstituteofcanada.com](mailto:aine@vinylinstituteofcanada.com)

## Appendix E

### Template letter to be forwarded to the waste disposal company

*Tin Stabilizer Waste Management Company Letterhead (logo)*

Date

Addressed to facility requesting the letter

RE: DISPOSAL OF WASTE CONTAINING TIN STABILIZERS

This will confirm that **ABC Company** is aware that waste which may contain tin stabilizers (including any cleaning materials of containers which previously contained tin stabilizers), are to be disposed of in accordance with the document titled “**Guideline for the Environmental Management of Tin Stabilizers in Canada**”. Furthermore, we understand that all waste materials must be prevented from entering the aquatic environment.

At **ABC Company**, we agree to only ship waste materials that contain tin stabilizers to facilities that can dispose of it by hazardous landfill, hazardous waste incinerator, or other equivalent methods that prevent tin stabilizers from entering the aquatic environment.

At **ABC Company**, we are proud of the trust that we’ve received from this industry and are determined to maintain that trust. Please feel free to contact me at **xxx xxx xxxx**, or via email at **email address** with any questions or concerns regarding our waste disposal practices.

Sincerely,

Signature of Manager/or Signing Officer.

**ABC Company**  
**Insert address**

## Appendix G

### Annual report on compliance with the Guideline for the Environmental Management of Tin Stabilizers in Canada

<b>Company:</b>			
<b>Facility address:</b>			
<b>Prepared by:</b>		<b>Telephone:</b>	
<b>Position title:</b>		<b>Email address:</b>	
<b>Reporting period:</b>	April 1 <sup>st</sup> , – March 31,	<b>Date completed:</b>	

<b>1 Tin stabilizer packaging type</b>			
Please indicate the type of packaging in which stabilizer is received at the facility.			
1a	Drums		
1b	Totes/IBCs		
1c	Bulk trucks		

<b>2 Tin stabilizer storage</b>			
Are stabilizers managed and stored at the facility as described in section 4 of the Guideline?			
2a	Yes		If "no," please explain:
2b	No		

<b>3 Tin stabilizer handling and dispensing</b>			
Are stabilizers handled and dispensed at the facility as described in section 5 of the Guideline?			
3a	Yes		If "no," please explain:
3b	No		

<b>4 Treatment of rinsate (section 6 of the Guideline)</b>			
Was stabilizer rinsate generated at the facility during the reporting year through the rinsing of tanks, lines or containers (drums, totes/IBCs, bulk trucks)?			
4a	Yes		If "yes," please explain the source of the rinsate:
4b	No		
If "yes," please indicate applicable disposal treatment:			
4c		Rinsate was reused in the process according to section 6 of the Guideline.	
4d		Rinsate was disposed of at a secure landfill or incinerated.	
4e		Rinsate was disposed of on-site at a wastewater treatment facility.	
4f		Other (please explain):	

<b>5 Waste contaminated with tin stabilizer</b>			
Did the facility generate any waste containing tin stabilizer during the reporting year?			
5a	Yes	<input type="checkbox"/>	If "yes," state the form of the waste generated:
		<input type="checkbox"/>	Solid (rags, gloves, absorbent, etc.):
		<input type="checkbox"/>	Liquid (obsolete/residual material, etc.):
5b	No	<input type="checkbox"/>	If "no," please explain why no waste was generated:
If "yes," was the waste managed according to subsection 9.1 of the Guideline?			
5c	Yes	<input type="checkbox"/>	If "no," please explain:
5d	No	<input type="checkbox"/>	
Was waste containing tin stabilizer sent out for disposal during the reporting year?			
5e	Yes	<input type="checkbox"/>	If "no," please explain:
5f	No	<input type="checkbox"/>	
Does the facility have assurance in writing from the waste management contractor that waste containing tin stabilizers will be disposed of only at a landfill or incinerator that is certified to handle hazardous materials, per section 9 of the Guideline?			
5g	Yes	<input type="checkbox"/>	If "no," please explain:
5h	No	<input type="checkbox"/>	
Does the facility maintain records for all shipments of waste containing tin stabilizer, including information on all handlers of this waste?			
5i	Yes	<input type="checkbox"/>	If "no," please explain:
5j	No	<input type="checkbox"/>	

<b>6 Empty containers (totes/IBCs and drums)</b>			
If the facility put a checkmark beside 1a and/or 1b, what type of totes/IBCs or drums were used to receive tin stabilizers during the reporting year?			
6a	Stainless steel	<input type="checkbox"/>	The empty stainless steel totes or drums are:
		<input type="checkbox"/>	Returned directly to the supplier:
		<input type="checkbox"/>	Sent to a tote refurbisher:
		<input type="checkbox"/>	Reused at the facility:
		<input type="checkbox"/>	Not applicable:
6b	Plastic/metal cage	<input type="checkbox"/>	The empty plastic/metal cage totes or drums are:
		<input type="checkbox"/>	Returned directly to the supplier:
		<input type="checkbox"/>	Sent to a tote refurbisher:
		<input type="checkbox"/>	Reused at the facility:
		<input type="checkbox"/>	Not applicable:
Are the empty re-usable totes/IBCs or drums handled as described in section 7 of the Guideline?			
6c	Yes	<input type="checkbox"/>	If "no," please explain:
6d	No	<input type="checkbox"/>	
Is the non-reusable packaging, if any, handled as described in subsection 9.2 of the Guideline?			
6e	Yes	<input type="checkbox"/>	If "no," please explain:
6f	No	<input type="checkbox"/>	
Does the facility have assurance in writing from the tote/IBC or drum refurbisher that waste containing tin stabilizer will not enter the aquatic environment?			
6g	Yes	<input type="checkbox"/>	If "no," please explain:
6h	No	<input type="checkbox"/>	
Does the facility maintain records for all shipments of empty tin stabilizer totes/IBCs or drums, including information on all handlers of these containers?			
6i	Yes	<input type="checkbox"/>	If "no," please explain:
6j	No	<input type="checkbox"/>	

<b>7 Work instructions</b>								
As described in section 10 of the Guideline, does the facility maintain work instructions/practices and training records relating to the use of tin stabilizer materials that address the following ("X" all applicable)?								
Receiving	<input type="checkbox"/>	<input type="checkbox"/>	Storage	<input type="checkbox"/>	<input type="checkbox"/>	Handling	<input type="checkbox"/>	<input type="checkbox"/>
Empty packaging	<input type="checkbox"/>	<input type="checkbox"/>	Waste disposal	<input type="checkbox"/>	<input type="checkbox"/>	WHMIS	<input type="checkbox"/>	<input type="checkbox"/>

<b>8 Spills</b>					
Does the facility have a functioning, documented spill response plan in place that contains the elements described in section 8 of the Guideline?					
8a	Yes	<input type="checkbox"/>	If "no," please explain:		
8b	No	<input type="checkbox"/>			
Did the facility have any tin stabilizer spills during the reporting year (see section 8 of the Guideline for the definition)?					
8c	Yes	<input type="checkbox"/>	If "yes," please indicate:		
			Number of spills at the facility that met the definition:	<input type="text"/>	<input type="text"/>
			Estimated volume of all stabilizer spills (in litres):	<input type="text"/>	<input type="text"/>
8d	No	<input type="checkbox"/>			

<b>9 Documentation</b>					
Has the documentation listed in section 11 of the Guideline been kept at the facility according to the requirements of that section?					
9a	Yes	<input type="checkbox"/>	If "no," please explain:		
9b	No	<input type="checkbox"/>			

<b>10 Significant change</b>					
Please indicate whether one or both of the following situations have occurred at your facility during the current reporting period:					
10a	<input type="checkbox"/>	The type of container/packaging (the mode of supply) in which the tin stabilizers are received at the facility has changed since the end of the former Agreement (2015–2020) or the current Agreement (2020–2025).			
10b	<input type="checkbox"/>	The facility has expanded or relocated its tin stabilizer–related infrastructure since the end of the former Agreement or the current Agreement.			
		Briefly describe the significant change.			
		<input type="text"/>			
		<input type="text"/>			
<b>If a vinyl compounding facility has started using tin stabilizers and was not verified under the former Agreement, or a facility has relocated its vinyl compounding facility to a new address, please inform the Vinyl Institute of Canada, because it is considered a new facility.</b>					

<b>11 Guideline implementation</b>					
Has the <i>Guideline for the Environmental Management of Tin Stabilizers in Canada</i> been fully implemented at the facility?					
11a	Yes	<input type="checkbox"/>			
11b	No	<input type="checkbox"/>			

Approval and Signature of Senior Manager	Date

Thank you for completing Appendix G. This document will not be forwarded to Environment and Climate Change Canada directly, but will be aggregated with the results from other facilities' forms and then submitted to Environment and Climate Change Canada as a consolidated industry report.

Please forward the completed form to:

**Vinyl Institute of Canada**  
**1425 North Service Road East, #3**  
**Oakville, ON L6H 1A7**

Attention:

**Aiñe Curran**

President and CEO

Vinyl Institute of Canada

Phone: 416-890-5553

Email: [aine@vinylinstituteofcanada.com](mailto:aine@vinylinstituteofcanada.com)