



Jared Blumenfeld  
Secretary for  
Environmental Protection



## Department of Toxic Substances Control

Meredith Williams, Ph.D.  
Acting Director  
1001 "I" Street  
P.O. Box 806  
Sacramento, California 95812-0806



Gavin Newsom  
Governor

March 26, 2019

Mr. Joseph Ulfing  
Manager, Environmental Health & Safety  
Sterigenics  
2015 Spring Road, Suite 650  
Oak Brook, Illinois 60523

### WASTE ETHYLENE GLYCOL SOLUTION AS EXCLUDED RECYCLABLE MATERIAL

Dear Mr. Ulfing:

Thank you for your letter dated August 9, 2018, to the Department of Toxic Substances Control (DTSC) inquiring whether Sterigenics' waste ethylene glycol solution generated from its air pollution control scrubber can be classified as an excluded recyclable material (ERM) under California Health and Safety Code section 25143.2, subdivision (b)(1). Sterigenics also asked DTSC whether the determination of the waste ethylene glycol solution as ERM would be impacted by the specific process(es) used at the facility where the ethylene glycol solution is sent for recycling and used to make a product.

In its correspondence with DTSC, Sterigenics did not identify the name of the recycling facility in Texas where the waste ethylene glycol solution is sent. For the purposes of this letter, DTSC will refer to that facility as the *Texas Facility*.

Sterigenics' questions regarding their waste ethylene glycol solution are as follows:

"1) Does the treatment process used by the Texas recycling facility that involves heating, application of vacuum, and removal and disposal of water and salt constituents of our glycol material as waste impact our glycol material's ability to qualify as a recyclable material pursuant to HSC Section 25143.2(b)(1), and be excluded from being categorized as a hazardous waste?

"2) If the glycol's recyclable material status is not impacted by how the Texas recycler processes our material, how can we go about getting that recycler, and/or other future recyclers with various recycling processes/methods, approved by DTSC and/or other CA regulators, as a recycler of our glycol material? Is

getting each recycler of our material approved necessary in order to continue to preserve the glycol material's recyclable material status?

"3) If the glycol's recyclable material status is impacted by how the Texas recycler has processed our material, are there any groups at DTSC or other regulatory groups/agencies with whom we should disclose the waste shipments that were already sent to the Texas facility without our permission?

"4) If the glycol's recyclable material status is impacted by how the Texas recycler has processed our material, must we count these shipments as waste for purposes of Biennial Reports or Hazardous Waste Generator Fee assessments even though the material was recycled, and not shipped under a hazardous waste manifest?

"5) In order to improve the safety of the shipment of our acidic glycol material in the public way from our facilities to our recyclers, we would like to explore the option of performing a pH adjustment to help neutralize the material prior to shipment. Ms. [Renee] Roberts [DTSC] has indicated that this is possible by obtaining an appropriate fixed treatment unit permit (likely a Permit-By-Rule or Conditionally Authorized tiers) for each of our sites from their respective CUPAs. Can DTSC please confirm Ms. Roberts' suggested approach in writing so that we can provide your response as guidance to our CUPAs as we also seek their assistance and permitting in this matter?"

## **BACKGROUND**

According to Sterigenics, it operates three ethylene oxide sterilization facilities at different locations in Southern California. As you stated in email correspondence<sup>1</sup>, "(T)he glycol material produced by our ethylene oxide sterilization facilities is a product of the scrubber emission control systems in place at those sites. These scrubbers, and their efficient operation, are required by state and federal ethylene oxide emission regulations." You also stated in separate correspondence<sup>2</sup>, "The scrubber generating the glycol material is an air pollution control device for our ethylene oxide sterilization operations." The process uses ethylene oxide and sulfuric acid to sterilize medical devices.

The ethylene oxide used in sterilization is captured by the facility's air emission control equipment (scrubbers). These Sterigenics' scrubbers produce an acidic ethylene glycol

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<sup>1</sup> Joseph Ulfig, email message to Tracy Young, January 29, 2019.

<sup>2</sup> Joseph Ulfig, email message to Tracy Young, September 12, 2018.

solution with a pH  $\leq$  2. This solution recirculates through the scrubber system until it reaches an approximate concentration of 40% ethylene glycol. At this concentration, the effectiveness diminishes, the tank is bled down (i.e., emptied or partially-emptied), and the ethylene glycol solution is removed from the scrubber system. The waste ethylene glycol solution removed cannot be sold directly as an antifreeze product. Approximately 10,000-15,000 gallons per month are removed at each of the three locations.

Prior to November 2011, Sterigenics classified its waste ethylene glycol solution as a hazardous waste, based on the concentration and pH of the ethylene glycol (less than 2.0).

Based on an informal conversation with DTSC<sup>3</sup>, Sterigenics determined in October 2011, as the generator of the waste, that the waste ethylene glycol may meet the definition of an ERM under Health and Safety Code section 25143.2, subdivision (b)(1). Under the provisions of that code section, Sterigenics then notified San Bernardino Certified Unified Program Agency (CUPA) of its intent to manage the waste ethylene glycol solution as ERM. In that letter to the CUPA<sup>4</sup>, Sterigenics confirmed it had “contracts in place for the ethylene glycol solution to be transported to a third party manufacturer who uses all of the material as the main ingredient for manufacturing industrial grade antifreeze.” Also, the waste was not processed prior to receipt by the “third-party manufacturer,” PLC Corporation in Illinois.

## **STATUS OF MATERIAL UNDER FEDERAL LAW**

Under federal law, the waste ethylene glycol would be considered a Resource Conservation and Recovery Act (RCRA) hazardous waste due to the characteristic of corrosivity, with its low pH (less than 2). Waste ethylene glycol produced from an air pollution control device would be classified as a sludge. According to 40 Code of Federal Regulations part 260.10, the definition of sludge includes any “solid, semi-solid, or **liquid waste** generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or **air pollution control facility** exclusive of the treated effluent from a wastewater treatment plant.” **[Emphasis added.]**

Pursuant to 40 Code of Federal Regulations part 261.2(c)(3), a sludge that exhibits a characteristic of hazardous waste is excluded from the definition of solid waste when it is reclaimed. If the waste ethylene glycol solution is not a solid waste, it cannot be a hazardous waste and is not subject to regulation as hazardous waste under federal law.

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<sup>3</sup> Jeffrey Smith, email message to Mary Misemer, February 10, 2012.

<sup>4</sup> Jeffrey Smith to Leslie Heaviside, October 19, 2011.

Conversely, if the recyclable material is managed by being used or reused as an ingredient in an industrial process to make a product and not reclaimed, the material is not a solid waste, pursuant to 40 Code of Federal Regulations part 261.2(e)(1)(i).

Under 40 Code of Federal Regulations part 261.1(c)(4):

“A material is “reclaimed” if it is **processed to recover a usable product**, or if it is regenerated”. **[Emphasis added.]**

DTSC agrees that the waste ethylene glycol is exempt from federal classification as a solid and hazardous waste as long as the following three conditions are met: it is recycled as described by Sterigenics, speculative accumulation does not occur, and no adverse environmental impacts result.

#### **STATUS OF MATERIAL UNDER CALIFORNIA LAW**

Waste ethylene glycol from a scrubber (i.e., an air pollution control device) would be classified as a sludge under state hazardous waste regulations. Pursuant to California Code of Regulations, title 22, section 66261.2, subsection (d)(3), Table 1, a sludge exhibiting a characteristic of hazardous waste that undergoes reclamation is a non-RCRA hazardous waste.

Under a provision of State law, similar to that of federal law, waste ethylene glycol can be excluded from classification as a waste, and therefore hazardous waste, in accordance with Health and Safety Code section 25143.2, subdivision (b)(1), when it is, or will be, used or reused as an ingredient in an industrial process to make a product, if the material is not reclaimed. Also, it may not be used in a restricted manner, such as burned for energy recovery, used in a product that is placed on the land, or speculatively accumulated. Additionally, the waste ethylene glycol must be managed in accordance with provisions of Health and Safety Code sections 25143.2, subdivision (f), 25143.9, and 25143.10.

If the waste ethylene glycol undergoes reclamation, the “use or reuse” exclusion under Health and Safety Code section 25143.2, subdivision (b)(1) does not apply. Therefore, it cannot be managed as ERM under this code section, but as a non-RCRA hazardous waste.

California standards can be more stringent than federal requirements.

## **REGULATORY/STATUTORY STATUS OF STERIGENICS WASTE ETHYLENE GLYCOL SOLUTION SENT FOR USE, REUSE OR RECLAMATION**

Sterigenics' waste ethylene glycol meets the corrosivity characteristic of hazardous waste and would also be a RCRA hazardous waste when sent for final disposal to a treatment, storage, and disposal facility (TSDF) and not recycled. However, when it is managed as a recyclable material and under certain conditions, it may be excluded from classification as a waste. PLC Corporation, in Illinois, recycles the waste ethylene glycol by managing it using one of these methods: use or reuse as an ingredient in an industrial process to make a product without reclamation. The recycled material at PLC Corporation meets the federal conditions in 40 Code of Federal Regulations part 261.2(e)(1)(i) for exclusion as a solid waste. The ethylene glycol is considered a recycled material that is not a solid waste, because it is "used or reused" without reclamation. Subsequently, it cannot be a hazardous waste and is not subject to regulation as hazardous waste under federal law. The waste ethylene glycol sent to PLC Corporation also meets the state hazardous waste exclusion because it is "used or reused" without reclamation [Health & Saf. Code, § 25143.2, subd. (b)(1)].

### **CONCLUSION**

DTSC's responses to Sterigenics' questions, summarized on pages 1 and 2 above, regarding their waste ethylene glycol solution follow.

1. Yes, the treatment process at the *Texas Facility* impacts the ERM status of Sterigenics' waste ethylene glycol solution. Under California law, Sterigenics' waste ethylene glycol solution is used at the *Texas Facility* in an industrial process which includes reclamation (i.e., processed to recover a usable product). Because reclamation occurs, the material does not meet the exclusion from material classification under Health and Safety Code section 25143.2, subdivision (b) and it cannot be managed as ERM.
2. Sterigenics waste ethylene glycol solution classification as a hazardous waste is impacted by its management at a particular recycler or final destination facility. In this case, DTSC does not provide approval for any out-of-state entity, including recyclers. It is the responsibility of Sterigenics to determine whether the recycler meets the specific recycling requirements in statutes and regulations as they pertain to the management of the waste ethylene glycol as ERM.
3. While there is no regulatory scheme for a generator to report to DTSC or U.S. EPA of instances where its hazardous waste was erroneously sent on a bill of

lading, DTSC suggests that Sterigenics create a new manifest for each bill of lading previously issued for transport to the *Texas Facility*. When submitting each new manifest, DTSC suggests including a letter to explain the reasons for the manifest submittal. DTSC also suggests that the generator record these events in the facility operating record as one method to demonstrate its actions to come into compliance with these requirements. To discuss the fee implications of waste generation tonnages, please contact DTSC Accounting Office by email at [Fees@dtsc.ca.gov](mailto:Fees@dtsc.ca.gov).

In Texas, there may be requirements on the receiving *Texas Facility* for an unmanifested waste report pursuant to 40 Code of Federal Regulations parts 264.76 or 265.76. Sterigenics would need to contact the *Texas Facility* to make that determination on the applicable requirements in Texas. Texas may require other state-specific documentation.

4. Under federal law [40 C.F.R. § 261.2], the waste ethylene glycol solution meets the federal definition of a sludge exhibiting a characteristic of hazardous waste and is reclaimed, thus it is not a federal solid waste and is excluded from RCRA. When excluded from RCRA, it is not counted for purposes of eligibility to submit a federal Biennial Report [40 C.F.R. § 262.41]. However, if it is not recycled and is disposed of, the waste becomes subject to full hazardous waste regulations under RCRA and Sterigenics would be subject to the requirement to submit a Biennial Report.

When the waste ethylene glycol solution was sent to the *Texas Facility*<sup>5</sup>, the waste did not meet the ERM provisions in Health and Safety Code section 25143.2. Therefore, the waste ethylene glycol solution was subject to full regulation as non-RCRA hazardous waste in California. Non-RCRA hazardous waste is not counted for purposes of the federal Biennial Report.

RCRA and non-RCRA hazardous waste, that are not excluded from state hazardous waste law [e.g., it is not an ERM pursuant to Health & Saf. Code, § 25143.2, subd. (b)(1)] must be transported by a registered Hazardous Waste Transporter and accompanied by a Uniform Hazardous Waste Manifest in compliance with the requirements of California Code of Regulations, title 22, division 4.5, including chapters 12 and 13, and applicable statutes, and therefore it would be subject to hazardous waste generator fees.

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<sup>5</sup> Joseph Ulfig, email message to Tracy Young, September 27, 2018.

5. Sterigenics' on-site neutralization process may be eligible for one of the Fixed Treatment Unit options under Tiered Permitting provided in California Code of Regulations, title 22, section 67450.2 et seq. by "performing a pH adjustment to help neutralize the material prior to shipment," as stated in your letter to DTSC. DTSC is providing the DTSC Onsite Tiered Permitting Flow Chart<sup>6</sup> (attached) with associated citations for your review. Based on the details of the hazardous waste quantities Sterigenics wants to treat and the site-specific activities, DTSC believes there may be a neutralization process that could apply to Sterigenics' desire to pH adjust the waste ethylene glycol solution prior to shipment.

DTSC Fact Sheets on Fixed Treatment Units are also attached<sup>7</sup>. There are five different fact sheets, dependent on how Sterigenics will be categorized (i.e., Conditional Exemption, Conditionally Authorized, or Permit-By-Rule)<sup>7</sup>. Sterigenics will need to determine its eligibility for the Tiered Permitting Process, then comply with all applicable laws and regulations. Sterigenics will also need to contact the local CUPA associated with each of its facilities for additional information and notification to each CUPA Tiered Permitting Program, respectively.

If you have any further questions or need additional information regarding hazardous waste management requirements, please contact Ms. Tracy Young of my staff at (916) 445-5659 or at [Tracy.Young@dtsc.ca.gov](mailto:Tracy.Young@dtsc.ca.gov).

Sincerely,



Ellen L. Haertle, Chief  
Industry Assistance, Training and Outreach Unit  
Policy and Program Support Branch  
Hazardous Waste Management Program

Enclosures

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<sup>6</sup> Department of Toxic Substances Control, "Onsite Tiered Permitting – Flowchart," July 22, 2010.

<sup>7</sup> Department of Toxic Substances Control, "Fixed Treatment Unit Operating Under Permit By Rule Fact Sheet," July 2003; "Fixed Treatment Unit Operating Under Conditional Authorization Fact Sheet," May 2005; "Fixed Treatment Unit Operating Under Conditionally Exempt-Limited Fact Sheet," May 2005; "Fixed Treatment Unit Operating Under Conditionally Exempt-Small Quantity Treatment Fact Sheet," May 2005; and "Fixed Treatment Unit Operating Under Conditionally Exempt-Specified Wastestreams Fact Sheet," May 2005.

Mr. Joseph Ulfig  
March 26, 2019  
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Mr. Joseph Ulfig  
March 26, 2019  
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Mr. Joseph Ulfig  
March 26, 2019  
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Mr. Joseph Ulfig  
March 26, 2019  
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August 9, 2018

Department of Toxic Substances Control  
Hazardous Waste Management Program  
Attention: Ellen Haertle, MS-11A  
1001 I Street  
Sacramento, CA 95814

RE: Request for Formal Guidance Regarding Glycol Material

Ms. Haertle:

Ms. Renee Roberts, of your staff, has requested that I submit this letter formally requesting written guidance from DTSC concerning about several questions related to the ethylene glycol material from our facilities. Below you will find some background information and facts about our facilities' current operations I discussed with Ms. Roberts that may be useful in answering the questions that follow at the end of this document.

**Background:**

Sterigenics operates three ethylene oxide sterilization facilities in California; one in Ontario, and two nearly adjacent facilities in Vernon - which we collectively call our LA facility. As part of our air emission control equipment, we operate scrubbers that produce an acidic ethylene glycol solution with a  $\text{pH} \leq 2$ , and an approximate 40% concentration of ethylene glycol.

Sometime in late 2011, a Sterigenics employee named Jeff Smith worked with DTSC's Mary Misemer to confirm that our ethylene glycol material qualified for the Recyclable Material Exclusion of the HSC at Section 25143.2(b)(1). Attached is an email chain between the two from 2012 that mentions their prior work in late 2011, and discusses how to apply the reclassification of material to the Biennial Waste Report. Those messages may have only been preserved in paper form in our records archive, and are not easily accessible.

I could locate the notifications we provided to the San Bernardino and Vernon CUPAs to inform them of the application of the recyclable materials exemption to our glycol. Attached is our notification provided to San Bernardino for our Ontario facility, sent after we secured guidance from DTSC. These materials describe the regulatory basis for the exemption's application to our material, and include details on how the recycler, PLC, utilized 100% of our glycol material in their production of antifreeze products. From this exchange with DTSC and our sites' CUPAs, we have since considered our glycol material to be an excluded "recyclable material", and not a hazardous waste.

2015 Spring Road Suite 650, Oak Brook, IL 60523

630-928-1700 | [sterigenics.com](http://sterigenics.com)

### Current Situation:

It recently came to our attention that the broker we utilize to send the glycol material off for shipment to our usual recycler, PLC, had shipped the glycol to another recycler in Texas that treats the material differently from PLC - which more or less just blends our material into a product. This was done without our prior authorization. This Texas recycler blends our material with other ethylene glycol feedstocks, sending the feedstock through a batch process that applies heat and vacuum to the mixed glycol solution. This processing removes water and precipitated salts out of the solution, which then are sent off to a wastewater treatment facility and landfill, respectively. The processed solution results in a material with a concentration ethylene glycol concentration of around 80% that is then sold by the Texas recycler to be used or blended into an antifreeze material. This Texas recycling facility believes they are conducting recycling operations only, and to our knowledge have not sought out or obtained hazardous waste permits. As soon as we discovered that shipments were going to this recycler, all further shipments to the Texas facility from our California sites were immediately halted.

### Questions:

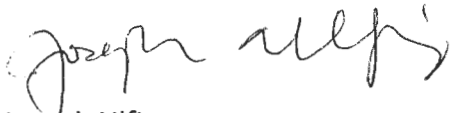
- 1) Does the treatment process used by the Texas recycling facility that involves heating, application of vacuum, and removal and disposal of water and salt constituents of our glycol material as waste impact our glycol material's ability to qualify as a recyclable material pursuant to HSC Section 25143.2(b)(1), and be excluded from being categorized as a hazardous waste?
- 2) If the glycol's recyclable material status is not impacted by how the Texas recycler processes our material, how can we go about getting that recycler, and/or other future recyclers with various recycling processes/methods, approved by DTSC and/or other CA regulators, as a recycler of our glycol material? Is getting each recycler of our material approved necessary in order to continue to preserve the glycol material's recyclable material status?
- 3) If the glycol's recyclable material status is impacted by how the Texas recycler has processed our material, are there any groups at DTSC or other regulatory groups/agencies with whom we should disclose the waste shipments that were already sent to the Texas facility without our permission?
- 4) If the glycol's recyclable material status is impacted by how the Texas recycler has processed our material, must we count these shipments as waste for purposes of

Biennial Reports or Hazardous Waste Generator Fee assessments even though the material was recycled, and not shipped under a hazardous waste manifest?

- 5) In order to improve the safety of the shipment of our acidic glycol material in the public way from our facilities to our recyclers, we would like to explore the option of performing a pH adjustment to help neutralize the material prior to shipment. Ms. Roberts has indicated that this is possible by obtaining an appropriate fixed treatment unit permit (likely a Permit-By-Rule or Conditionally Authorized tiers) for each of our sites from their respective CUPAs. Can DTSC please confirm Ms. Roberts' suggested approach in writing so that we can provide your response as guidance to our CUPAs as we also seek their assistance and permitting in this matter?

If you have any questions, please contact me at (630) 928-1710.

Sincerely,



Joseph Ulfig  
Manager, Environmental Health & Safety  
Sterigenics, A Sotera Health Company  
[julfig@sterigenics.com](mailto:julfig@sterigenics.com)

enclosures

## Ulfig, Joseph

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**From:** Mary Misemer <MMisemer@dtsc.ca.gov>  
**Sent:** Friday, February 10, 2012 11:15 AM  
**To:** Smith, Jeffrey  
**Subject:** RE: Recyclable waste exclusion question

OK, I understand... Yes, what you probably have is D002. So you are correct. You have to report it in the Biennial Report - good luck....

>>> "Smith, Jeffrey" <[JPSmith@sterigenics.com](mailto:JPSmith@sterigenics.com)> 2/10/2012 8:55 AM >>>  
Thanks Mary.

Just to clarify - - the ethylene glycol as it leaves our plant is at pH ~ 1.0, so it's not "used antifreeze" we are shipping. Rather, we send this solution to an antifreeze manufacturer that uses it as an ingredient in making antifreeze. This is the basis for our claiming the Recyclable Materials exclusion under Section 25143.2(b)(1) and 40CFR 261.2 e (i).

So should I report the ethylene glycol on the Biennial Report for the period prior to November, before we started managing it as a recyclable material? Again, it was being shipped under a hazardous waste manifest prior to November.

Thanks for your assistance

Jeff Smith  
EHS Manager

2015 Spring Road, Suite 650  
Oak Brook, IL 60523  
Office: 630.928.1724  
Fax: 630-928-1701

-----Original Message-----

From: Mary Misemer [<mailto:MMisemer@dtsc.ca.gov>]  
Sent: Friday, February 10, 2012 10:38 AM  
To: Smith, Jeffrey  
Subject: Re: Recyclable waste exclusion question

Hi Jeff,

Let's answer the Biennial Generator Report question. Under RCRA Anti freeze that is being recycled is excluded from the definition of a Solid Waste therefore they are exempt from RCRA and you don't have to report on the Biennial Generator Report. So if you've always sent out for recycling, you don't need to report it on the Biennial Report. Same thing if you recycle on-site.

For the California Generator Fee, you can only claim the fee exemption from October forward. Since they bill off manifests, you shouldn't see anything from October forward.....

>>> "Smith, Jeffrey" <[JPSmith@sterigenics.com](mailto:JPSmith@sterigenics.com)> 2/7/2012 8:59 AM >>>

Hi Mary,

You may recall that we spoke last October concerning our ethylene glycol material qualifying for the Recyclable Material Exclusion in Section 25143.2(b)(1).

We began managing this material under this exemption in late October. Prior to then it was manifested as a hazardous waste, although it was being sent to the same processor as now who uses the material as an ingredient in manufacturing industrial antifreeze.

I have two questions:

First, should I consider the shipments of the ethylene glycol that were manifested as hazardous waste until we began claiming the Recyclable Materials exclusion, as RCRA-hazardous waste that should be reported in the Biennial waste report?

Second, I just received the annual BOE hazwaste generator fee form. Is the ethylene glycol exempt from being counted as a hazardous waste for the entire year (2011), even though we began claiming the Recyclable Material waste exclusion in October?

Please feel free to call me at either number below.

Thanks for your help!

Jeff Smith  
EHS Manager

[Description: Description: [cid:image001.png@01CAA408.40306ED0](#)]  
2015 Spring Road, Suite 650  
Oak Brook, IL 60523  
Office: 630.928.1724 Cell phone: 847.421.3023





COPY

October 19, 2011

Ms. Leslie Heaviside  
CUPA- Hazardous Waste Division  
San Bernardino County Fire Department  
620 South E Street  
San Bernardino, CA 92415

RE: Sterigenics Ontario Facility – FA0003565  
Notice of Recyclable Materials Exclusion

Dear Ms. Heaviside:

Pursuant to our recent discussion, Sterigenics U.S., LLC formally wishes to notify your office of our intention to begin managing ethylene glycol material at our Ontario facility as an “excluded recyclable material” under California Health and Safety Code 25143.2 (b) (1). Information supporting this exclusion is provided below and in the enclosed documents. We plan to commence claiming the excluded materials exemption on November 1<sup>st</sup> provided we do not hear back from your office that further documentation is required. If not, beginning on or about November 1, 2011, the facility will no longer manage its ethylene glycol material as a hazardous waste and will discontinue manifesting shipments of the material as a hazardous waste.

By way of background, the ethylene glycol is generated as a byproduct in the facility’s Ceilcote scrubber emission control system. The scrubber system treats Ethylene Oxide (EtO) emissions from the facility’s sterilization process using a recirculating acidic water solution. Within the scrubber process EtO chemically reacts with the acid solution to remove over 99.9% of the EtO from the facility’s air emissions, producing an acidic ethylene glycol solution as a byproduct. The ethylene glycol solution typically recirculates within the scrubber system for about two weeks until the ethylene glycol concentration in the solution reaches about 40%. At this level the effectiveness of the solution diminishes to the point where a portion of it is pumped from the scrubber reaction tank and replaced with fresh water and sulfuric acid. About 4700 gallons of the acidic ethylene glycol solution are removed each time the tank is bled down. During 2010, a total of about 150,000 gallons of ethylene glycol solution was removed from the facility’s scrubber system and manifested as hazardous waste.

Sterigenics has contracts in place for the ethylene glycol solution to be transported to a third party manufacturer who uses all of the material as the main ingredient for manufacturing industrial grade antifreeze. Presently, PLC Corporation in Lake Bluff, Illinois is the sole manufacturer receiving the ethylene glycol solution from our Ontario facility. The enclosed letter from Roger Risher, President of PLC, attests that PLC beneficially uses the solution for manufacturing legitimate industrial antifreeze products. Mr. Risher further states that no constituents from the solution are disposed during the manufacturing process.

Although PLC Corporation has been processing the facility’s ethylene glycol solution for a number of years, Sterigenics has never filed notice with the San Bernardino Co. Fire Department CUPA authority of our intention to claim the “excluded recyclable material” exemption for this material. Consequently, the Ontario facility has been managing the material as a hazardous waste and using the Uniform Hazardous Waste Manifest form when shipping the material to PLC Corporation. As mentioned above, with this



notification the facility intends to begin claiming the excluded recyclable materials waste exemption for this material on or about November 1<sup>st</sup>.

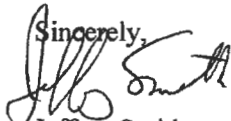
As outlined in Section 25143.2, to qualify for the exclusion recyclable materials also must satisfy the management provisions in Section 25143.9. The facility's conformance with each of these provisions is addressed as follows:

- Section 25143.9(a) - *Containers or tanks holding the material must be labeled/marked/placarded with the words "Excluded Recyclable Material", instead of "Hazardous Waste".* The facility's scrubber reaction tank will have such labeling on it when the facility begins to manage the ethylene glycol material under the excluded recyclable materials exemption on or about November 1, 2011.
- Section 25143.9(b) - *The facility must have a business plan that meets the requirements of Section 25504, including emergency response plans and procedures that specifically address the material or meet emergency response and contingency requirements applicable to generators of hazardous waste.* Please refer to the enclosed Ontario Facility Business Emergency/Contingency Plan, which addresses these items.
- Section 25143.9(c) - *The material must be stored and handled in accordance with all local ordinances and codes.* The facility is designed and operated in accordance with applicable building and fire codes, and is routinely inspected by local authorities for conformance to such requirements.
- Section 25143.9(d) - *If the material is exported to a foreign country, the person exporting the material shall satisfy Section 25162.1.* The Ontario facility does not export ethylene glycol material.

Finally, facilities wishing to claim that a material qualifies for the recyclable material exclusion also must satisfy Section 25143.10 regarding providing specific information to their local CUPA authority. Please refer to the enclosed Appendix 1- "Supporting Information for Recyclable Materials Exclusion", which addresses each of the required informational items.

In closing, we believe our Ontario facility qualifies for a recyclable material exclusion under Section 25143.2 (b) (1) with regard to the ethylene glycol solution produced in the facility's scrubber emission control system.

Thank you for considering this matter. Please contact me at (630) 928-1724 if you have any questions or need further information.

Sincerely,  
  
Jeffrey Smith  
EHS Manager

Enclosures

# Appendix 1

## Supporting Information for Recyclable Materials Exclusion

1. Generator: Sterigenics U.S., LLC – Ontario Facility  
687 S. Wanamaker Street  
Ontario, CA 91761

2. Facility ID#: FA0003565

3. EPA ID#: CAL00285525

4. Recycler's Name/Address: PLC Corporation  
220 Baker Road  
Lake Bluff, IL 60044

5. Recycler's Phone #: 847/247-1900

6. Documentation of material use and market for products:

Please refer to the enclosed letter dated Oct 10, 2011 from Roger Risher, President of PLC, for documentation of there being a legitimate use of the ethylene glycol from Sterigenics' Ontario facility, and of there being a known market for the industrial-grade antifreeze from which it is manufactured.

7. General description of the recyclable material:

Ethylene glycol solution containing approximately 40% ethylene glycol (by wt.), and having a pH  $\leq$  1.2.

8. General description of products from which the ethylene glycol is used an ingredient:

Industrial-grade antifreeze products containing X% ethylene glycol

9. Constituents in the recyclable material that would render the material hazardous if disposed as a waste:

Material typically contains  $\geq$  37% ethylene glycol by concentration, which DTSC regulates as a non-RCRA hazardous waste due to toxicity if at a concentration greater than 33%.

Material also is corrosive due to pH consistently being below 2.0

# PLC

P.O. Box 67, Lake Bluff, IL 60044  
Phone 847-247-1900, Fax 847-247-1902

Date: 10/11/2011

To Whom It May Concern:

This is to certify that PLC Corporation currently receives routine tanker truck deliveries of ethylene glycol liquids generated at the Ontario, California and Los Angeles, California plants owned by Sterigenics U.S. LLC, headquartered in Oak Brook, Illinois.

PLC Corporation uses 100% of the ethylene glycol liquid as an ingredient in the manufacture of industrial-grade antifreeze products at its Lake Bluff, Illinois facility, and no constituents from the liquid are disposed as a waste during the manufacturing process. We further certify that there is a commercial market for the industrial-grade antifreeze manufactured using the ethylene glycol liquid from these Sterigenics plants.

This certification is being provided for purposes of documenting that the ethylene glycol liquid from the above mentioned Sterigenics plants may qualify for federal and/or state hazardous waste management regulatory exclusions.

Sincerely,



Roger Risher

President, PLC Corporation

## Ulfig, Joseph

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**From:** Roberts, Renee@DTSC <Renee.Roberts@dtsc.ca.gov>  
**Sent:** Wednesday, August 08, 2018 12:09 PM  
**To:** Ulfig, Joseph  
**Subject:** RE: Recyclable Materials Processing Questions  
**Attachments:** Fact-Sheet-Fixed-Treatment-Unit-Operating-Under-Permit-By-Rule.pdf; HWMP\_FS\_FTUCA.pdf; Fact-Sheet-Fixed-Treatment-Unit-Conditionally-Exempt-Limited.pdf; Fact-Sheet-Fixed-Treatment-Unit-Conditionally-Exempt-Small-Quantity-Treatment.pdf

Mr. Ulfig,

It was a pleasure speaking with you again today. As we discussed, please send your formal request to:

Department of Toxic Substances Control  
Hazardous Waste Management Program  
Attention: Ellen Haertle, MS-11A  
1001 I Street  
Sacramento, CA 95814

Ellen is my supervisor, and she will be the person who manages who will provide your formal written response. Please include all relevant information in your formal request, including any previous communications you received from DTSC and your Certified Unified Program Agency regarding your previous ERM approval/concurrence.

After discussion with one of my colleagues, I do feel that the Fixed Treatment Unit permit is what you will need for your proposed pH neutralization of your glycol solution prior to offsite shipment for recycling. This makes sense, as it is safer for transport. And as you stated, it opens up the ability of your company to have many other companies recycle your glycol. Please see the attached fact sheets regarding fixed treatment units. There are 4 different fact sheets, dependent on how your company will be categorized (Conditional Exemption, Conditionally Authorized, Permit-By-Rule). Again, this is handled by your Certified Unified Program Agency (CUPA), who issues these permits.

*Renee Roberts*

Environmental Scientist  
Industry Assistance, Training, & Outreach Unit  
Hazardous Waste Management  
Department of Toxic Substances Control

Office Number: (916) 324-8192



DTSC Regulatory Assistance Officers provide informal guidance only about management of hazardous waste for the convenience of the public. Such oral or electronic mail advice is not binding upon DTSC, nor does it have the force of law. If you would like a formal opinion on a matter by DTSC, please contact the responsible program office directly. You should also refer to the statutes and regulations, DTSC Policies and Procedures, and other formal documents. If you would like to provide us feedback please do so at: <http://www.calepa.ca.gov/files/2016/10/Custom-CustForm.pdf>

**From:** Ulfig, Joseph [mailto:JUlfing@sterigenics.com]  
**Sent:** Thursday, July 19, 2018 1:29 PM  
**To:** Roberts, Renee@DTSC <Renee.Roberts@dtsc.ca.gov>  
**Subject:** Recyclable Materials Processing Questions

Renee –

Thank you for your call today in response to my inquiry on the DTSC regulatory assistance hotline. As you requested, I'll provide you with some written background information to work with, and try to put my questions in writing.

**Background:**

Sterigenics operates three ethylene oxide sterilization facilities in California – one in Ontario, and two nearly adjacent facilities in Vernon (which we collectively call our LA facility). As part of our air emission control equipment, we operate scrubbers that produce an acidic (pH less than or equal to 2) ethylene glycol solution of about 40% concentration. Sometime in late 2011, a Sterigenics employee named Jeff Smith worked with DTSC's Mary Misemer to confirm that our ethylene glycol material qualified for the Recyclable Material Exclusion of the HSC at Section 25143.2(b)(1). Attached is an email chain between the two from 2012 that mentions their prior work in late 2011, and discusses how to apply the reclassification of material to the Biennial Waste Report. Unfortunately, I cannot find any messages from DTSC on this topic at the moment. Those messages may have only been preserved in paper form in our records archive, and are not easily accessed by me at the moment.

I could locate the notifications we provided to the San Bernardino and Vernon CUPAs to inform them of the application of the recyclable materials exemption to our glycol. Attached is our notification provided to San Bernardino for our Ontario facility. These materials describe the regulatory basis for the exemption's application to our material, and include details on how the recycler, PLC, utilized 100% of our glycol material in their production of antifreeze products.

**Current Situation:**

It recently came to our attention that the broker we utilize to send the glycol material off for shipment to our usual recycler (PLC) had shipped the glycol to another recycler in Texas that treats the material differently from PLC, which more or less just blends our material into a product. This was done without our prior authorization. This Texas recycler blends our material with other feedstocks in a storage tank that is used to feed a batch process that applies heat and vacuum to the mixed glycol solution. This processing removes water and precipitated salts out of the solution, which then are sent off to a wastewater treatment facility and landfill, respectively. The processed solution results in a high concentration ethylene glycol product that is then sold by the Texas recycler to be used or blended into an antifreeze material. This Texas recycling facility believes they are conducting recycling operations only, and have not sought out/obtained hazardous waste permits. As soon as we discovered that shipments were going to this recycler, all further shipments to the Texas facility from our California sites were immediately halted.

**Questions:**

- 1) Does the treatment process used by the Texas recycling facility (that involves heating, application of vacuum, and removal and disposal of water and salt constituents of our glycol material as waste) impact our glycol material's ability to qualify as a Recyclable Material pursuant to HSC Section 25143.2(b)(1), and be excluded as a hazardous waste?
- 2) If the glycol's Recyclable Material status is not impacted by how the Texas recycler processes our material, how can we go about getting this new recycler approved by DTSC as a handler of our glycol material? As I read the HSC regulations, I think we have to notify DTSC of how and where our material is being recycled.

- 3) If the glycol's recyclable material status is impacted by how the Texas recycler processes our material, is there any group at DTSC who should we speak further regarding the waste shipments that were already sent to the Texas facility (without our permission)?
  
- 4) I've been told that our California sites are not allowed to neutralize the ethylene glycol material prior to shipment for recycling. Could you please help clarify the regulatory basis for why this is so? I believe that in the other states in which we operate, we are able to neutralize this material with a strong base, and then ship it as a non-RCRA hazardous waste. This makes for safer shipment of the material should some sort of on the road accident occur, and reduces paperwork headaches by not shipping a hazardous waste. I also see that the HSC allows for screening, filtering, and pH adjustment and other simple adjustments of non-RCRA waste. It seems sort of counterintuitive that this practice would be prohibited by California on the glycol material that we ship.

Thank you very much for your assistance. Please give me a call if you need anything else, or would like to discuss anything.

Joseph Ulfig, P.E.  
Manager, Environmental Health & Safety  
Sterigenics, A Sotera Health Company  
2015 Spring Road, Suite 650  
Oak Brook, IL 60523  
[julfig@sterigenics.com](mailto:julfig@sterigenics.com)  
Office: 630-928-1710  
Cell: 773-420-8770



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