

STATE OF MICHIGAN  
DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY  
OFFICE OF THE DIRECTOR

In the matter of administrative proceedings  
against **CRIMSON HOLDINGS, LLC**, a  
corporation, organized under the laws of the  
State of Iowa and doing business at  
1336 East Maumee Street in the  
City of Adrian, County of Lenawee,  
State of Michigan

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AQD No. 2024-01

SRN: E8117

STIPULATION FOR ENTRY OF FINAL ORDER  
BY CONSENT

This proceeding resulted from allegations by the Michigan Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division (AQD) against Crimson Holdings, LLC also known as Crimson Adrian, LLC, (Company), a corporation organized under the laws of the State of Iowa and doing business at 1336 East Maumee Street, City of Adrian, County of Lenawee, State of Michigan, with State Registration Number (SRN) E8117. EGLE alleges that the Company is in violation of Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA), MCL 324.5501 *et seq.*, Rule 901 of the Michigan Air Pollution Control Rules, Mich Admin Code, R 336.1901 (Rule 901); Rule 201 of the Michigan Air Pollution Control Rules, Mich Admin Code, R 336.1201 (Rule 201); and the conditions of Permit to Install (PTI) No. 38-06. Specifically, EGLE alleges that the Company commenced operation of unpermitted equipment at the facility without a PTI for a powdered egg dehydration processes in violation of Rule 201; operated the SV-Spray Dryer stack modified by a prior owner without an approved permit modification, in violation of Rule 201 and PTI No. 38-06; and emitted odors from the facility that caused an unreasonable interference with the comfortable enjoyment of life and property on May 23, 2022, May 24, 2022, May 25, 2022, July 15, 2022, October 28, 2022, March 28, 2023, April 4, 2023, June 14, 2023, and September 26, 2023, in violation of Rule 901(b); as cited herein and in the Violation Notices dated April 7, 2022, May 26, 2022, July 21, 2022, November 1, 2022, March 28, 2023, April 7, 2023, June 22, 2023, and September 28, 2023. The Company and EGLE stipulate to the termination of this proceeding by entry of a Stipulation for Entry of a Final Order by Consent (Consent Order).

The Company and EGLE stipulate as follows:

1. The NREPA MCL 324.101 *et seq.*, is an act that controls pollution to protect the environment and natural resources in this State.

2. Article II, Pollution Control, Part 55 of the NREPA (Part 55), MCL 324.5501 *et seq.*, provides for air pollution control regulations in this State.

3. Executive Order 2019-06 renamed the Michigan Department of Environmental Quality as EGLE, and EGLE has all statutory authority, powers, duties, functions, and responsibilities to administer and enforce all provisions of Part 55.

4. The EGLE Director has delegated authority to the Director of the AQD (AQD Director) to enter into this Consent Order.

5. The termination of this matter by a Consent Order pursuant to Section 5528 of Part 55, MCL 324.5528, is proper and acceptable.

6. The Company and EGLE agree that the signing of this Consent Order is for settlement purposes only and does not constitute an admission by the Company that the law has been violated.

7. This Consent Order becomes effective on the date of execution (Effective Date of this Consent Order) by the AQD Director.

8. The Company shall achieve compliance with the aforementioned regulations in accordance with the requirements contained in this Consent Order.

#### COMPLIANCE PROGRAM AND IMPLEMENTATION SCHEDULE

##### 9. Rules

On and after the Effective Date of this Consent Order, the Company shall comply with Rule 901.

##### 10. Permit to Install

On and after the Effective Date of this Consent Order, the Company shall comply with PTI No. 38-06A, and any subsequent permit revision. The PTI, and any subsequent permit revision, shall be enforceable under this Consent Order.

##### 11. Nuisance Minimization Plan for Odors

A. On and after the Effective Date of this Consent Order, the Company shall comply with the Nuisance Minimization Plan for Odors (NMPO). The NMPO is attached as Exhibit A and the NMPO, as amended, shall be enforceable under this Consent Order.

B. Upon written request from the AQD Jackson District Supervisor to revise the NMPO, the Company shall submit a revised NMPO to the AQD Jackson District Supervisor within thirty (30)

days of receipt of the request. In addition, the Company may submit a written notice of proposed changes to the NMPO to the AQD Jackson District Supervisor. Within thirty (30) days of receiving the revised NMPO from the Company, the AQD will in writing: (1) approve, in whole or in part, the submission; (2) approve, in whole or in part, the submission upon specified conditions; (3) disapprove, in whole or in part, the submission, requiring the Company to correct the identified deficiencies. The Company shall, within thirty (30) days or such longer time as specified by the AQD in such notice, address any requested changes or deficiencies and resubmit the plan for approval. Upon approval, the revised NMPO shall be incorporated into and enforceable under this Consent Order.

C. On and after the Effective Date of this Consent Order, the Company shall record and retain the Company's annotated checklists and logs of inspections, including any maintenance and repair or replacement, of the measures required in the NMPO. This information shall be kept on file at the facility for a period of at least five (5) years and shall be made available to EGLE upon written or verbal request.

12. Control Program for Particulate Emissions from the SV-Spray Dryer

On and after the Effective Date of this Consent Order, the emissions of particulate matter less than 10 microns and emissions of particulate matter less than 2.5 microns from the egg powder spray dryer dehydration process shall not exceed the emission limits specified in the PTI.

13. Schedule and Control Program for Wet Packed Bed Scrubber and Waste Water Treatment System (WWTS)

A. On and after the Effective Date of this Consent Order, the Company shall ensure that the egg powder spray dryer dehydration process emissions exit through the existing tall stack until completion of the wet packed bed scrubber and shall be operated in accordance with the terms of the NMPO.

B. On or before December 22, 2023, the Company shall commence operation of the wet packed bed scrubber and control emissions from the egg powder spray dryer dehydration process through the wet packed bed scrubber in accordance with the manufacturer specifications and the PTI. Within three (3) days of commencing operation of the wet packed bed scrubber, the Company shall notify the AQD in writing.

C. Within forty-five (45) days following commencement of operation of the wet packed bed scrubber, the Company shall submit to the AQD a report that confirms that the wet packed bed

scrubber is installed and operating as designed and in accordance with manufacturing specifications and the PTI.

D. On and after the Effective Date of this Consent Order, the Company shall operate and maintain the WWTS and the Dissolved Air Flotation tank to address and control odors, in accordance with the NMPO.

14. Force Majeure

A. The Company shall perform the requirements of this Consent Order within the time limits established herein, unless performance is prevented or delayed by events that constitute a "Force Majeure." Any delay in the performance attributable to a "Force Majeure" shall not be deemed a violation of the Company's obligations under this Consent Order in accordance with this section.

B. For the purpose of this Consent Order, "Force Majeure" means an occurrence or nonoccurrence arising from causes not foreseeable, beyond the control of, and without the fault of the Company, such as but not limited to: an Act of God, untimely review of permit applications submissions by EGLE or other applicable authority, and acts or omissions of third parties that could not have been avoided or overcome by the Company's diligence and that delay the performance of an obligation under this Consent Order. "Force Majeure" does not include, among other things, unanticipated or increased costs, changed financial circumstances, or failure to obtain a permit or license as a result of the Company's actions or omissions.

C. The Company shall notify EGLE, by telephone or email, within forty-eight (48) hours of discovering any event that may cause a delay in its compliance with any provision of this Consent Order. Verbal notice shall be followed by written notice within ten (10) calendar days and shall describe, in detail, the anticipated length of delay, the precise cause or causes of delay, the measures taken by the Company to prevent or minimize the delay, and the timetable by which those measures shall be implemented. The Company shall adopt all reasonable measures to avoid or minimize any such delay.

D. Failure of the Company to comply with the notice requirements and time provisions under paragraph 14.C to the extent practicable shall render this paragraph 14 void and of no force and effect as to the particular incident involved. EGLE may, at its sole discretion and in appropriate circumstances, waive in writing the notice requirements of paragraph 14.C above.

E. If the parties agree that the delay or anticipated delay was beyond the control of the Company, this may be so stipulated, and the parties to this Consent Order may agree upon an

appropriate modification of this Consent Order. However, EGLE is the final decision-maker on whether or not the matter at issue constitutes a “Force Majeure”. The burden of proving that any delay was beyond the reasonable control of the Company, and that all the requirements of this paragraph 14 have been met by the Company, rests with the Company.

F. An extension of one compliance date based upon a particular incident does not necessarily mean that the Company qualifies for an extension of a subsequent compliance date without providing proof regarding each incremental step or other requirement for which an extension is sought.

#### GENERAL PROVISIONS

15. On and after the Effective Date of this Consent Order, except as otherwise provided by the administrative rules of Part 55, the Company shall not install, construct, reconstruct, relocate, alter, or modify any process or process equipment including control equipment pertaining thereto, which may emit an air contaminant, unless a PTI which authorizes such action is issued by EGLE pursuant to Rule 201, the Company is issued a waiver pursuant to Rule 202, or the change is exempt from the requirements of Rule 201.

16. This Consent Order in no way affects the Company’s responsibility to comply with any other applicable state, federal, or local laws or regulations, including without limitation, any amendments to the federal Clean Air Act, 42 USC 7401 *et seq.*, Part 55, or their rules and regulations, or to the State Implementation Plan.

17. This Consent Order constitutes a civil settlement and satisfaction as to the resolution of the violations specifically addressed herein; however, it does not resolve any criminal action that may result from these same violations.

18. Within thirty (30) days after the Effective Date of this Consent Order, the Company shall pay to the General Fund of the State of Michigan, in the form of a check made payable to the “State of Michigan” and mailed to the Michigan Department of Environment, Great Lakes, and Energy, Accounting Services Division, Cashier’s Office, P.O. Box 30657, Lansing, Michigan 48909-8157, a settlement amount of \$106,180.00, which includes the AQD costs for investigation and enforcement. This total settlement amount shall be paid within thirty (30) days after the Effective Date of this Consent Order. To ensure proper credit, all payments made pursuant to this Consent Order shall include the “Payment Identification Number AQD40321” on the front of the check and/or

in the cover letter with the payment. This settlement amount is in addition to any fees, taxes, or other fines that may be imposed on the Company by law.

19. On and after the Effective Date of this Consent Order, if the Company fails to comply with paragraph 15 of this Consent Order, the Company is subject to a stipulated fine of up to \$10,000.00 per violation per day. On and after the Effective Date of this Consent Order, if the Company fails to comply with paragraph 9, 13.A, or 13.B of this Consent Order, the Company is subject to a stipulated fine of up to \$5,000.00 per violation per day. On and after the Effective Date of this Consent Order, if the Company fails to comply with paragraph 10, 11.A, or 11.B of this Consent Order, the Company is subject to a stipulated fine of up to \$3,000.00 per violation per day. On and after the Effective Date of this Consent Order, if the Company fails to comply with paragraph 11.C, 12, 13.C, or 13.D of this Consent Order, the Company is subject to a violation of \$1,000.00 per violation per day. The amount of the stipulated fines imposed pursuant to this paragraph shall be within the discretion of EGLE. Stipulated fines submitted under this Consent Order shall be by check, payable to the State of Michigan within thirty (30) days after written demand and shall be mailed to the Michigan Department of Environment, Great Lakes, and Energy, Accounting Services Division, Cashier's Office, P.O. Box 30657, Lansing, Michigan 48909-8157. To ensure proper credit, all payments shall include the "Payment Identification Number AQD40321-S" on the front of the check and/or in the cover letter with the payment. Payment of stipulated fines shall not alter or modify in any way the Company's obligation to comply with the terms and conditions of this Consent Order.

20. The AQD, at its discretion, may seek stipulated fines or statutory fines for any violation of this Consent Order which is also a violation of any provision of applicable federal and state law, rule, regulation, permit, or EGLE administrative order. However, the AQD is precluded from seeking both a stipulated fine under this Consent Order and a statutory fine for the same violation.

21. To ensure timely payment of the settlement amount assessed in paragraph 18 and any stipulated fines assessed pursuant to paragraph 19 of this Consent Order, the Company shall pay an interest penalty to the State of Michigan each time it fails to make a complete or timely payment under this Consent Order. The interest penalty shall be determined at a rate of twelve percent (12%) per year compounded annually, using the full increment of amount due as principal, calculated from the due date specified in this Consent Order until the date that delinquent payment is finally paid in full. Payment of an interest penalty by the Company shall be made to the State of Michigan in accordance with paragraph 19 of this Consent Order. Interest payments shall be applied first towards

the most overdue amount or outstanding interest penalty owed by the Company before any remaining balance is applied to subsequent payment amount or interest penalty.

22. The Company agrees not to contest the legal basis for the settlement amount assessed pursuant to paragraph 18. The Company also agrees not to contest the legal basis for any stipulated fines assessed pursuant to paragraph 19 of this Consent Order but reserves the right to dispute in a court of competent jurisdiction the factual basis upon which a demand by EGLE of stipulated fines is made. In addition, the Company agrees that said fines have not been assessed by EGLE pursuant to Section 5529 of Part 55, MCL 324.5529, and therefore are not reviewable under Section 5529 of Part 55.

23. This compliance program is not a variance subject to the 12-month limitation specified in Section 5538 of Part 55, MCL 324.5538.

24. This Consent Order shall remain in full force and effect for a period of at least three (3) years. Thereafter, this Consent Order shall terminate only upon written notice of termination issued by the AQD Director. Prior to issuance of a written notice of termination, the Company shall submit a request, to the AQD Director at the Michigan Department of Environment, Great Lakes, and Energy, Air Quality Division, P.O. Box 30260, Lansing, Michigan 48909-7760, consisting of a written certification that the Company has fully complied with all the requirements of this Consent Order and has made all payments including all stipulated fines required by this Consent Order. Specifically, this certification shall include: (i) the date of compliance with each provision of the compliance program and the date any payments or stipulated fines were paid; (ii) a statement that all required information has been reported to the AQD Jackson District Supervisor; (iii) confirmation that all records required to be maintained pursuant to this Consent Order are being maintained at the facility; and, (iv) such information as may be requested by the AQD Director.

25. In the event the Company sells or transfers the facility, with SRN E8117, it shall advise any purchaser or transferee of the existence of this Consent Order in connection with such sale or transfer. Within thirty (30) calendar days, the Company shall also notify the AQD Jackson District Supervisor, in writing, of such sale or transfer, the identity and address of any purchaser or transferee, and confirm the fact that notice of this Consent Order has been given to the purchaser and/or transferee. As a condition of the sale, the Company must obtain the consent of the purchaser and/or transferee, in writing, to assume all of the obligations of this Consent Order. A copy of that

agreement shall be forwarded to the AQD Jackson District Supervisor within thirty (30) days after assuming the obligations of this Consent Order.

26. Prior to the Effective Date of this Consent Order and pursuant to the requirements of Sections 5511 and 5528(3) of Part 55, MCL 324.5511 and MCL 324.5528(3), the public was notified of a 30-day public comment period and was provided the opportunity for a public hearing.

27. Section 5530 of Part 55, MCL 324.5530, may serve as a source of authority but not a limitation under which this Consent Order may be enforced. Further, Part 17 of the NREPA, MCL 324.1701 *et seq.*, and all other applicable laws and any other legal basis or applicable statute may be used to enforce this Consent Order.

28. The Company hereby stipulates that entry of this Consent Order is a result of an action by EGLE to resolve alleged violations of its facility located at 1336 Maumee Street, City of Adrian, County of Lenawee, State of Michigan. The Company further stipulates that it will take all lawful actions necessary to fully comply with this Consent Order, even if the Company files for bankruptcy in the future. The Company will not seek discharge of the settlement amount and any stipulated fines imposed hereunder in any future bankruptcy proceedings, and the Company will take necessary steps to ensure that the settlement amount and any future stipulated fines are not discharged. The Company, during and after any future bankruptcy proceedings, will ensure that the settlement amount and any future stipulated fines remain an obligation to be paid in full by the Company to the extent allowed by applicable bankruptcy law.



The undersigned certifies that he/she is fully authorized by the Company to enter into this Consent Order and to execute and legally bind the Company to it.

**CRIMSON HOLDINGS, LLC**

\_\_\_\_\_  
Print Name and Title

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

Approved as to Content:

Approved as to Form:

\_\_\_\_\_  
Annette Switzer, Director  
AIR QUALITY DIVISION  
DEPARTMENT OF  
ENVIRONMENT, GREAT LAKES,  
AND ENERGY

\_\_\_\_\_  
Margaret Bettenhausen, Section Head  
AIR AND WATER SECTION  
ENVIRONMENT, NATURAL RESOURCES,  
AND AGRICULTURE DIVISION  
DEPARTMENT OF ATTORNEY GENERAL

Dated: \_\_\_\_\_

Dated: \_\_\_\_\_

FINAL ORDER

The Director of the Air Quality Division having had opportunity to review this Consent Order and having been delegated authority to enter into Consent Orders by the Director of the Michigan Department of Environment, Great Lakes, and Energy pursuant to the provisions of Part 55 of the NREPA and otherwise being fully advised on the premises,  
HAS HEREBY ORDERED that this Consent Order is approved and shall be entered in the record of EGLE as a Final Order.

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

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Annette Switzer, Director  
Air Quality Division

Effective Date: \_\_\_\_\_

# **Nuisance Odor Management Plan Egg Powder Manufacturing**

**Prepared For:  
Crimson Holdings, LLC  
Adrian, Michigan**

**July 22, 2022  
Revised September 19, 2023  
Project No. 220602**

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**List of Abbreviations/Acronyms**

A/C	air to cloth
AQD	Air Quality Division
BOD	biochemical oxygen demand
Btu	British thermal unit
Btu/hr	Btus per hour
cfm	cubic feet per minute
CIP	clean in place
City	City of Adrian
COD	chemical oxygen demand
°F	degrees Fahrenheit
DAF	dissolved air flotation
EGLE	Michigan Department of Environment, Great Lakes, and Energy
FIFO	first in/first out
FOG	fats, oil, and grease
ft <sup>2</sup>	square foot/feet
GAPP	Generally Acceptable Processing Practices
gpd	gallon(s) per day
gph	gallon(s) per hour
gpm	gallon(s) per minute
HAP	hazardous air pollutant
HC	hydrocarbons
HVAC	heating, ventilating, and air conditioning
MAPA	Michigan Agricultural Processing Act
MCL	Michigan Compiled Laws
MDARD	Michigan Department of Agriculture and Rural Development
MMBtu/her	million Btus per hour
NaHSO <sub>3</sub>	sodium bisulfite
NaOH	sodium hydroxide
NOMP	Nuisance and Odor Management Plan
O&M	operations and maintenance
ORP	oxidation Reduction potential

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oz	ounce(s)
PM	preventive maintenance
POTW	publicly-owned treatment works
ppm	part(s) per million
psi	pound(s) per square inch
PTI	Permit to Install
SDS	Safety Data Sheet(s)
SO <sub>2</sub>	sulfur dioxide
SOTE	Standard Oxygen Transfer Efficiency
TAC	toxic air contaminant
TSS	total suspended solids
µm	micrometer(s)
USEPA	U.S. Environmental Protection Agency
WWTP	wastewater treatment plant

## 1.0 Introduction

The Crimson Holdings facility is located at 1336 East Maumee Street, Adrian, Michigan. The building is bounded by East Church Street to the south. To the west lies a residential neighborhood; further west is the U.S. Postal Service. There is a residential neighborhood along East Maumee Street and East Church Street, which is bounded by East Maumee street on the east. To the east and south are various other commercial industries, including Anderson Development Company, AGET Manufacturing Company, and Norfolk Southern. The Lenawee County Fairgrounds lie to the north. For several years, Dairy Farmers of America operated the facility to produce powdered milk, which was permitted under Air Use Permit to Install (PTI) 38-06. Crimson Holdings purchased the facility in December of 2021 and began processing eggs instead of milk. Powdered egg is a fully dehydrated egg, which is made in much the same way as powdered milk.<sup>1</sup> The PTI was transferred to Crimson Holdings, LLC, when we purchased the facility and began operating it in December 2021.

While converting the facility from powdered milk production to powdered egg production, Crimson Holdings has maintained certain practices to ensure the security and quality of our product, while also adjusting other practices to better address new challenges. Crimson Holdings has maintained a near identical practice of food security, including but not limited to:

- Incoming loads being properly sealed and documented
- Exterior doors being closed and locked, including overhead bay doors
- Quality inspection prior to unloading
- Product storage requirements (temperature)
- Quality testing of finished product with a Hold and Release Program before product is shipped to a customer.

Although the process is much the same as milk, we have also improved on other processes and practices, including:

- Additional filtering of incoming product to remove fine particulate matter. We have installed pre-filtration with a final filtration of 25 micron (or better) of all incoming product. This filtering system was installed to remove shells and other debris from the incoming liquid eggs.
- The wastewater pretreat system is run more consistently to better manage wastewater volumes with fewer start-ups and shutdowns.
- A reverse osmosis system was installed to remove water prior to transferring liquid eggs to the dryer.
- The sludge tank is completely emptied three times per week to allow for a water rinse to remove any sludge buildup on the tank walls.
- Other room exhaust fans are being evaluated for additional filtering where direct product handling occurs.
- Addition of activated carbon to control odors from the sludge tank.
- Modification and increase in height of the sludge tank vent pipe to vent unobstructively upwards.
- Addition of an odor neutralizing system on the powder dryer exhaust stack.
- Modification of the dryer exhaust stack to a total height of 100 feet above the ground.
- Installing a packed-bed scrubber to control odors from the dryer exhaust

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<sup>1</sup> <https://financialtribune.com/articles/economy-domestic-economy/20230/investment-opportunities-in-powdered-egg-production>

## 2.0 Nuisance Odor Plan Development

MDARD and the Michigan Department of Environment, Great Lakes, and Energy (EGLE) have requested that Crimson Holdings develop a Nuisance Odor Management Plan (NOMP) to address odor complaints received with respect to the facility. The NOMP must contain information on operation and maintenance (O&M) practices that will mitigate odors from handling and processing liquid eggs. A procedure to accept and respond to complaints is also required. MDARD also requires that agricultural processing operations follow generally accepted agricultural and management practices, which can also include good housekeeping and the use of odor mitigation when necessary. This plan identifies those practices to be followed by the Crimson Holdings facility.

### 2.1 Michigan Agricultural Processing Act

The MDARD GAPP for agricultural processors provides that the development of an Odor Management Plan can assist the processor in identification of odor sources and implementation of odor reduction practices. The goal of an effective Odor Management Plan is to identify opportunities and propose practices and actions to reduce the frequency, intensity, duration, and offensiveness of odors that neighbors may experience in such a way that tends to minimize impact on neighbors and create a positive attitude toward the processor. The GAPP also provides that a processor experiencing odor concerns from a neighboring property should develop an Odor Management Plan in an attempt to avoid neighbor conflicts.

### 2.2 Michigan Air Pollution Control Regulations

Under normal circumstances, a powdered egg manufacturer might be considered exempt from air permitting. A PTI was issued to the facility when its operations were manufacturing powdered milk; the PTI was transferred to the new owners who manufacture powdered eggs. The PTI references Michigan's air pollution control rules.

In Michigan, odors are regulated as a *nuisance* under Michigan Air Pollution Control Rule (Rule) 901. Rule 901 states that:

*Notwithstanding the provisions of any other department rule, a person shall not cause or permit the emission of an air contaminant or water vapor in quantities that cause, alone or in reaction with other air contaminants, either of the following:*

- (a) Injurious effects to human health or safety, animal life, plant life of significant economic value, or property.*
- (b) Unreasonable interference with the comfortable enjoyment of life and property.*

### 2.3 Air Quality Policy and Procedure 21

Michigan Air Policy and Procedure 21, *Application of Rule 901(b) in the Permit to Install Review Process (AQD-21)* outlines requirements for reviewing the potential for a nuisance in a prospective project and provides information on developing a NOMP. Recommended elements include:

- Introduction, including process description, permit number, and background information
- Potential sources of odor and control equipment, if applicable
- Maintenance schedule
- Housekeeping measures
- Odor notification, investigation, and response



### 3.0 Powdered Egg Manufacturing

Documents required by MDARD and EGLE require a process description as well as a description of air pollution control equipment and odor mitigation measures.

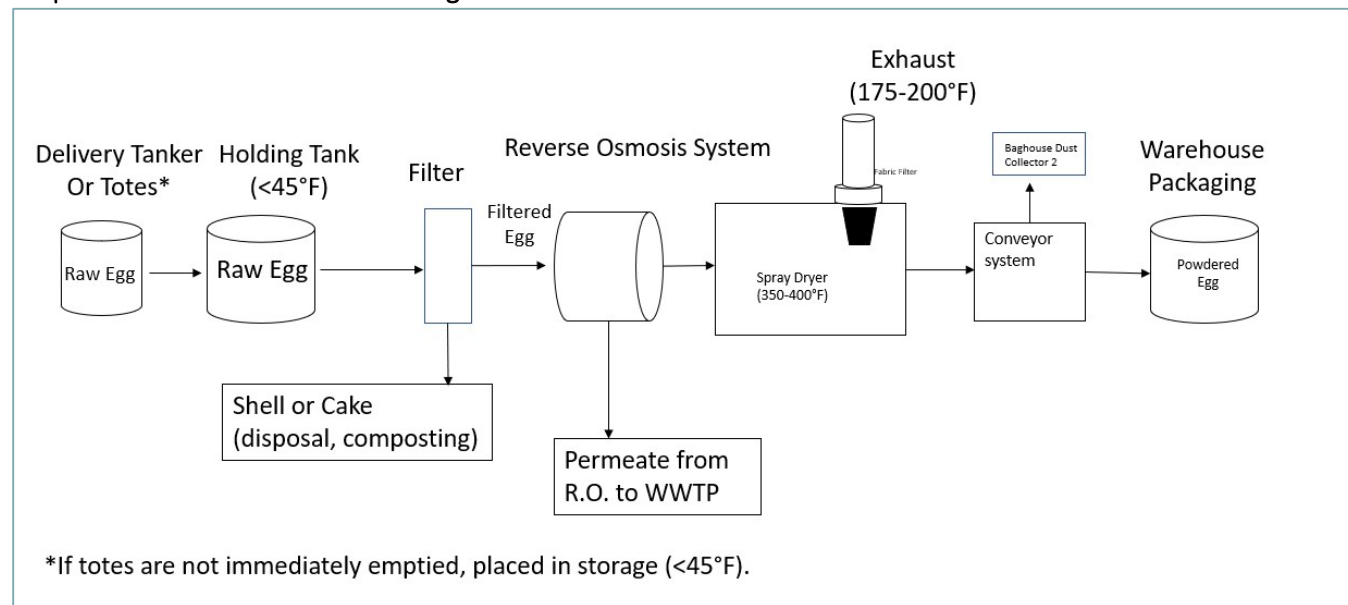
#### 3.1 Process Description

Crimson Holdings manufactures powdered eggs for the pet food industry. Once a tanker, tote or barrel is emptied, the liquid eggs are transferred to holding tanks that vent inside the facility. If totes or barrels cannot be received immediately, they are stored at a temperature less than 45°F until they can be emptied. To dehydrate eggs, the water must be removed – liquid egg is pumped to a reverse osmosis system (RO) to remove water, condensing the egg, before the product is transferred to the spray dryer. Spray drying is the most common method used to dry whole eggs. The liquid eggs are also pasteurized before entering the spray dryer. After the eggs are dried into powder, the powdered egg product is cooled in a system of cyclones. The spray dryer has a fabric filter to reduce emissions and to ensure that food product is not deposited around the plant where it could attract rodents or other pests. The powder flows through the dryer and the conveying system in the same way that powdered milk would. A second baghouse dust collector is located in the packaging area. The powdered eggs are then bagged and shipped for use in pet food. Graphic 1 presents the process flow of the operation.

Permeate is generated from the reverse osmosis system, as the water is removed from the liquid egg. This permeate is discharged directly to the end of the DAF tank and is discharged without treatment to the city. If, for some reason, the permeate does not meet discharge standards, this water is diverted to the wastewater system for pretreatment before being discharged to the city.

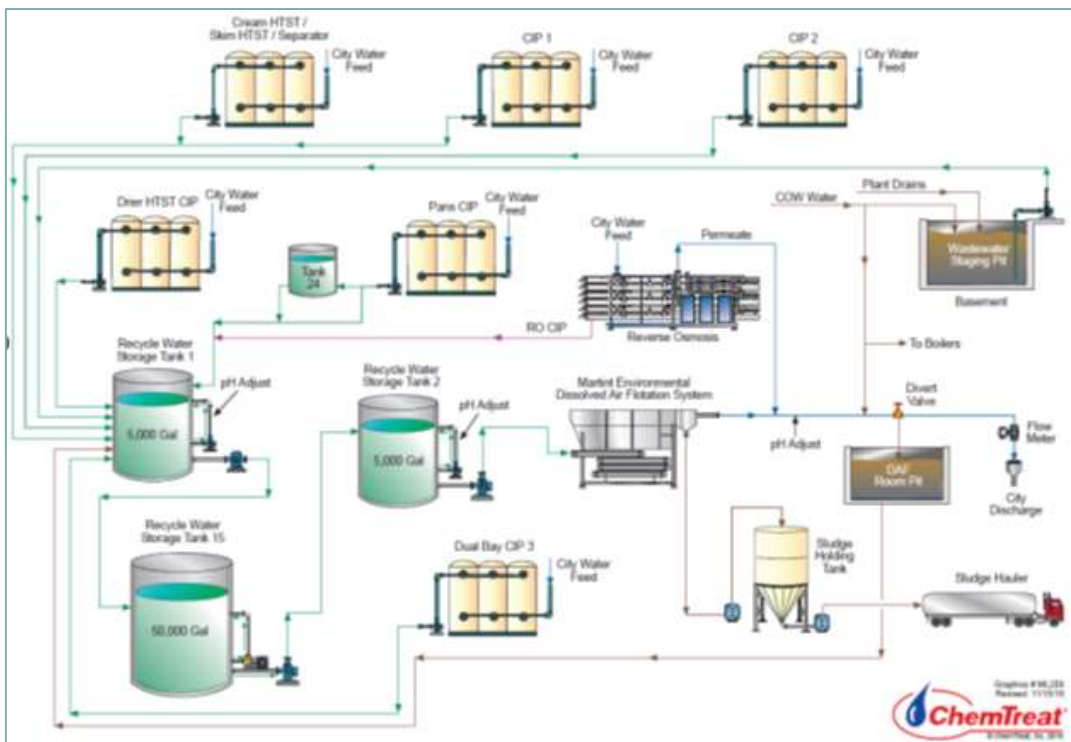
Water used for cleaning processing equipment and general facility cleaning is routed through the wastewater system and pretreated prior to being discharged to the City.

Graphic 1 – Revised Process Flow Diagram



Crimson Holdings also operates its own onsite wastewater treatment plant (WWTP), which treats wastewater before it is discharged to the City of Adrian’s (City’s) publicly-owned treatment works (POTW). Graphic 2 of this NOMP provides a process flow diagram of the WWTP:

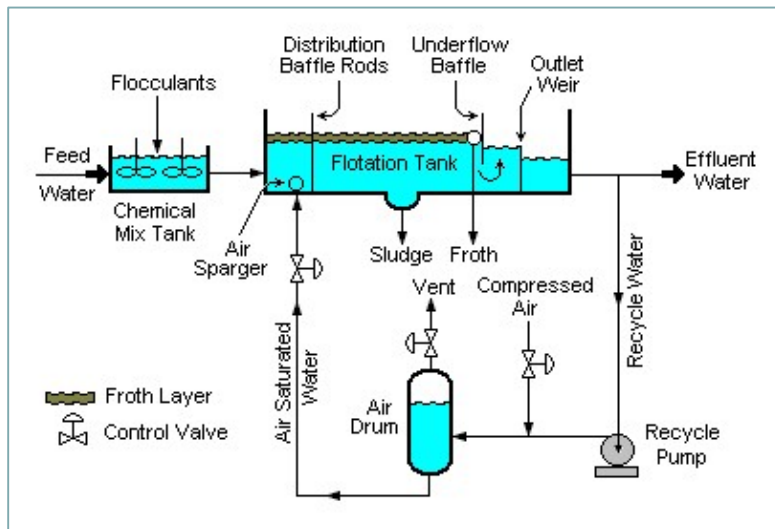
Graphic 2 – Wastewater Process Flow Diagram



Wastewater is routed to the first equalization tank where caustic and acid are used to adjust the pH. The wastewater is then routed to a large storage tank (tank 15) and then pumped to a second equalization tank—using both caustic and acid to make final adjustment of the pH before being pumped to the DAF system. The DAF is designed to reduce levels of fats, oils, and greases (FOG) and total suspended solids (TSS) from wastewater. The DAF system is also capable of reducing insoluble biological oxygen demand (BOD) and chemical oxygen demand (COD), which is crucial for protecting local environments and waterways. The city limits the BOD, FOG, and TSS discharged to their sewer system. A coagulant or flocculant is applied to the wastewater in the DAF system to emulsify the solids in the wastewater.

Sludge from the DAF tank is collected and pumped to the sludge tank; the sludge tank is emptied approximately three times a week and the sludge is disposed in an environmentally acceptable manner.

Graphic 3 – Dissolved Air Flotation Treatment System



## 3.2 Odor Control Systems

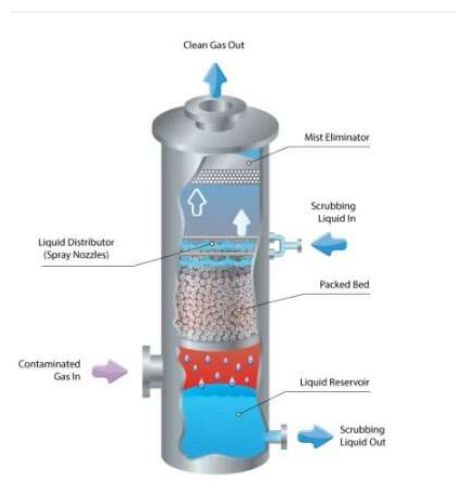
Crimson uses add-on control systems for the dryer stack and the WWTP. A new scrubber is being proposed for the dryer stack.

### 3.2.1 Packed-bed Scrubber

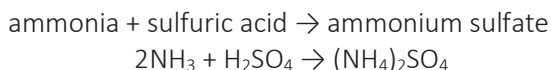
Packed-bed scrubbers are commonly used to control odors from industrial processes. This type of scrubber spreads the liquid over packing material to provide a large surface area for liquid/gas interaction. Packed-bed scrubbers are classified according to the relative direction of the gas and liquid flows. In the counter-current design, the liquid is introduced at the top of the tower using sprays or weirs and flows downward over the packing material. The contaminated gas stream enters at the bottom of the tower and flows upward through the packing.

A packed-bed scrubber will be installed to control odors from the spray dryer. The proposed scrubber is manufactured by Tri-Mer. In wet scrubbing processes used for gaseous control, a liquid is used to remove pollutants from an exhaust stream. The removal of pollutants in the gaseous stream is done by absorption. Wet scrubbers used for this type of pollutant control are often referred to as absorbers. Most absorbers have removal efficiencies in excess of 90%, depending on the pollutant(s) absorbed.

Graphic 4 – Packed-bed Scrubber

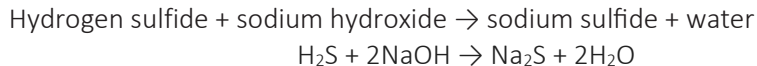


Packed-bed scrubbers are columns filled with packing materials that provide a large surface area to facilitate contact between the liquid and gas. The driving force of the absorption process is related to the amount of soluble gas in the gas stream and the concentration of the solute gas in the liquid film that comes in contact with the gas. The absorbing material is made up of a solution of either acid solution or basic solution that reacts with the pollutant(s) being absorbed to reduce the concentration. By changing the chemical composition of the absorbing solution, the charge can be changed. One of the scrubber stages proposed at Crimson Holdings will use sulfuric acid to control ammonia, amines, and other nitrogenous compounds by absorption in the acidic solution. The sulfuric acid will react with these compounds to create compounds that will not be odorous. For example:



Ammonium sulfate, and other compounds which do not have an odor, will result from the reaction with sulfuric acid.

The second stage of the packed-bed scrubber will use sodium hydroxide to control acid gas emissions including sulfur dioxide, sulfides, nitric acid, and similar compounds. A caustic solution (sodium hydroxide, NaOH) is the most common scrubbing liquid used for acid-gas control (e.g., hydrocarbons [HC], sulfur dioxide [SO<sub>2</sub>], or both).



Sodium sulfide and water will result from reacting hydrogen sulfide with sodium hydroxide. Sulfur dioxide will also react with sodium hydroxide, resulting in sodium bisulfite (NaHSO<sub>3</sub>). Carbonyl sulfide reacts with sodium hydroxide, resulting in sodium carbonate, sodium hydrosulfide and water. Any organic acids will be neutralized in the sodium hydroxide solution to form water and an ionic compound or salt. For example, acetic acid reacts with sodium hydroxide to form sodium acetate and water. Sodium hypochlorite (bleach) is unnecessary in the second stage though it will give the exhaust a sweeter, cleaner smell.

The packed-bed scrubber is also equipped with a mist eliminator. The mist eliminator is necessary to ensure that there is not a carryover of the solution out of the stack where it could create a haze or cause fall-out. The mist eliminator will control droplets up to 20 micrometers (µm) at an efficiency better than 99%.

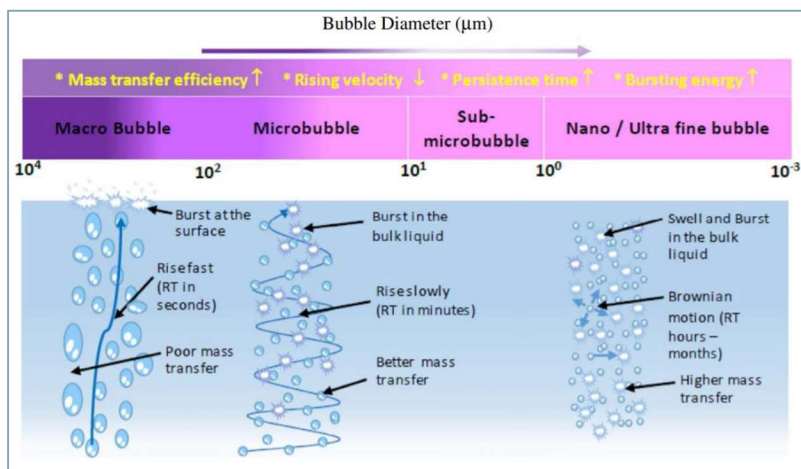
**3.2.2 Odor Neutralizer**

Until the scrubber is operational, Crimson Holdings will utilize an odor neutralizer to mitigate odors. Crimson Holdings purchased a fogging system that can be used to introduce an odor neutralizer to the exhaust system. The system sprays the solution with water; the ratio of solution to water can vary. The site has tested ratios between 5:1 to 109:1 with total diluted solution used between 10 and 24 gallons per hour (gph). The spray system uses between 15 and 20 cfm air to assist in the atomizing the solution. The PathoSans Pathocide odor neutralizer includes a small amount of hypochlorous acid and can be applied with the current system at a 5:1 dilution ratio up to 24 gph. These SDS are also included in Appendix 1.

**3.2.3 Odor Control in the WWTP**

Fugitive odors from the facility’s onsite WWTP were previously identified by EGLE staff; Crimson Holdings has addressed these odors. Crimson Holdings has also operated the DAF on a new schedule and has increased the frequency at which the sludge is moved to the sludge storage to further reduce the possibility of odors. While the sludge storage tank already had a carbon filter, the casing was replaced as was the stack for the tank.

In addition to changes in operating the system and removing sludge, Crimson is now employing a non-buoyant oxygen infusion treatment system (nanobubbles). This system oxidizes dissolved sulfide, ammonia, and BOD in wastewater. The technology purifies ambient air to form pure oxygen which is pressurized and emulsified into a stream of water and discharged at high velocity through capillary tubes submerged in water. The process creates an ultra-fine diffusion of molecular oxygen in the form of nano-bubbles, which collapse upon being discharged into the water, and is



**Graphic 5 – Relation of Bubble Size to Transfer Efficiency**

This results in a non-buoyant fluid saturated with highly charged ion radicals of oxygen which remain suspended in water and achieve significantly higher levels of Standard Oxygen Transfer Efficiency (SOTE).

The non-buoyant oxygen infusion nozzles create a high velocity liquid discharge to deliver the high concentrations of dissolved gases without the formation of larger buoyant bubbles, thus improving aeration. More available

oxygen can increase biological activity, enhance organic sludge reduction, oxidize contaminants, and improve odor management.

## 4.0 Odor Control Work Practices

The goal for effective odor management is to reduce the frequency, intensity, duration, and offensiveness of odors and to manage the operation in a way that tends to create a positive attitude toward the operation. Because of the range of human sensitivities to certain odors, odor management should consider that some people will be more adversely affected by a given odor than others. Selection of appropriate technologies and odor management practices must be determined on a case-by-case basis considering the source and nature of the odors as well as varying human sensitivity. The recommendations in this section are intended to provide a variety of responses that can be used to address odor concerns. The following management practices provide guidance on how to minimize potential odors from processing operations.

The principles upon which the most common and effective techniques for odor control are based include (1) reducing the formation of odor-causing gases and (2) reducing the release of odorous gases into the atmosphere. The degree to which these principles can be applied to the various odor sources depends on the level of technology and management that can be utilized.

### 4.1 Inspection of Incoming Raw Material

Liquid eggs are received by trucks in either tankers, totes, or barrels. Before the material is unloaded, a checklist is completed. The following checks are performed and documented for each load. An example form used to check in loads is included in Appendix 2:

- Supplier location is verified to the Incoming Schedule and recorded
- Product temperature is checked prior to receiving to ensure that the temperature is below approximately 45°F.
- An organoleptic inspection is completed, including visual and smell. The load is inspected to ensure the eggs smell fresh and the load is free of foreign material.
- Component testing is conducted; pH, moisture (total solids), protein, fat, and ash
- Loads may be rejected for the following reasons; however, it should be noted that these are not the *only* reasons for rejection: lack of security seals, unacceptable temperature, foreign material(s), and excessive odor. As there is no specific regulation to reject product for temperature, acceptance is primarily based on visual and odor acceptance.

More recently, Crimson Holdings has been working with suppliers to ensure only fresh liquid eggs are brought to the facility for processing. When loads have been rejected and sent for disposal, Crimson Holdings has provided the vendor with feedback on the reason for rejection and has offered suggestions on how the vendor might avoid rejected shipments in the future. When this program was first instituted, several loads were rejected; fewer loads are now rejected as suppliers have a better understanding of the raw material quality criteria in use at the facility.

### 4.2 Manufacturing Quality Control Measures

At a facility like Crimson Holdings, the primary source of odors would be from the egg drying process. Once the process has been brought online, it is operated continuously, generally for approximately six days before being brought offline for cleaning and maintenance. It should be noted that a first in/first out (FIFO) liquid egg management system has been implemented to ensure that the liquid eggs are processed as quickly as possible.

Liquid egg is stored at or below 45°F.

- The quantity of raw material, temperature, and agitation in the storage tanks are verified and documented by plant staff three times per day.

- Tank temperatures are recorded on a 24/7 recording chart and checked against tank indicating thermometers three times per day. Variances of more than 2°F are investigated and corrected by the Quality Department.
- If the storage tank temperature is observed to be above 45°F, cooling will be applied to the tank to reduce the temperature.
- Raw storage tanks are encouraged to be emptied and cleaned in place (CIP) after no more than 72 hours of use.
- If stored product is determined not to meet production quality expectations, the storage tank will be tagged for spoilage, dated, and initialed by a member of management. Spoiled product disposal will be coordinated, and the spoiled material pumped to the sludge tank for disposal pickup.

While in operation, the dryer is monitored for the following on an hourly basis:

- Air inlet temperature/exhaust temperature
- Dryer baghouse pressure (measures buildup of baghouse socks)
- Product receiver baghouse pressure (measures buildup of baghouse socks)
- Dryer baghouse dust probe (detector)
- Inspection of the exhaust deodorizer system; operational and solution in tank
- Dryer sprays are inspected and cleaned every 12 hours, replaced as needed based on wear checks
- Additional quality and mechanical related items; moisture, pump pressures, temperatures, etc.

### 4.3 Housekeeping

Effective and consistent housekeeping measures will minimize the potential for odorous emissions. While the facility is no longer specifically regulated by the Food and Drug Administration, similar housekeeping techniques have been implemented to meet corporate and client requirements. For example, hair nets, booties, and lab coats are worn by all employees in the processing area.

One main source of odors is the anaerobic (in the absence of oxygen) decomposition of organic material by microorganisms. The intensity of odors depends upon the biological reactions that take place within the material, the nature of the material, and the surface area of the odor source. Sources of decomposition can include organic materials stored onsite prior to removal. Liquid eggs are processed as quickly as possible to ensure that they do not sit and deteriorate, which would cause odors.

Prior to starting for the week, the operation is verified cleaned/sanitized prior to use:

- Dryer air inlet is swept and mopped to remove any residual powder buildup
- Dryer spray chamber internal surfaces are swept clean, this includes the ceiling, walls, and floors
- Dryer sprayers are cleaned and measured for wear prior to use for production sprayers are replaced based on wear indicator
- Cooling head water valve is verified "ON" to reduce powder buildup, discoloration on the spray chamber wall.

In addition, the egg receiving lines and associated equipment and areas are cleaned on a daily basis following the Good Manufacturing Practices (Daily Post-Op) checklist as follows:

- "Inedible" receiving bay floors and drains are cleaned and rinsed nightly.
- Storage tanks are cleaned daily when emptied.

After each week's powder production run, the following are completed:

- All interior dryer surfaces are dry swept, including ceiling, walls, and floors.
- Dryer equipment and related processing equipment are cleaned in place (CIP); product transfer line, dryer surge tanks and dryer heater system.
- Related mechanical inspections as part of the Post-Op inspection.
- Related manual cleaning of equipment as part of the Post-Op inspection.

By introducing standard operational practices that include efficient, repeatable, safe ways to work, safety and environmental incidents can be eliminated. To best control odors, several specific routine housekeeping procedures will be followed, including:

- Storage of all raw materials and waste in their proper covered containers.
- Ensuring product chemical drums and buckets are closed when not in use.
- Keeping waste in closed containers and recycling or disposing of it quickly.
- Immediate cleanup of any spills or leaks.
- Bay doors are closed when trucks are not entering or existing the facility.

#### 4.4 Maintenance

The PM Program includes checklists to document work completed. Wastewater PM includes:

- DAF unit inspection and cleaning (WWTP) – The DAF system is drained and foam-cleaned daily.
- Manual cleaning of the DAF room (WWTP) is performed weekly. This includes foam-cleaning the exterior of equipment, floors, stairs, walls, etc.
- Sludge disposal is scheduled at least 3 times per week to allow complete emptying of the tank and allow for a water rinse to prevent sludge buildup.
- Additional unrelated mechanical inspections
- The carbon media used in the sludge tank stack is currently changed every quarter. This activity is on the PM schedule. Activated carbon is contained in a canister through which sludge tank vapors must pass prior to being exhausted. (The carbon is contained in the white canister shown in Graphic 8.) As far as a written procedure for carbon changeout, Crimson Holdings does not currently have one; in general, the process is as follows: The canister lid is opened; the spent carbon inside is removed, placed in a separate container for disposal, and is replaced with fresh activated charcoal; the lid is closed.

**Graphic 6 – Carbon Canister on Sludge Tank Stack**

Additional monthly, quarterly, semiannual, and annual maintenance activities are also conducted.

A Master Sanitation List has been established which includes defined departmental cleaning tasks and the frequency at which they are performed. This includes interior plant non-food contact surfaces, walls, floors, drains, room areas, etc. which are cleaned on a weekly or monthly basis based on the area and its use. Appendix 3 provides an Example Summary of the Master Sanitation Schedule.



#### 4.5 Proper Operation of the Packed-bed Scrubber

Using information provided by Crimson Holdings, Tri-Mer designed a two-stage packed-bed scrubber. The first section will control acid gas and organic acids while the second stage will use an acid solution to control ammonia and similar air pollutants. A bleach solution is also circulated prior to the mist eliminator to provide a fresh scent. The mist eliminator will ensure there is no water carryover or fallout. For each section of the scrubber, Crimson Holdings staff will monitor the pH, pressure drop, and liquid flow rate to ensure it is operating properly. These operating parameters influence the effectiveness of the air contaminant removal. The pressure drop on each section of the scrubber is measured as an indicator of proper liquid flow rate and gas distribution in the scrubber.

Acceptable operating parameters will be developed for the system (whose purpose is odor control) once the unit is placed in service.

Proper maintenance of the packed-bed scrubber is essential for proper operation and odor control. The following activities will be performed **each day**:

- Check and document the pressure drop across the scrubber. If the pressure drop falls out of the normal range, corrective action will be taken within 24 hours to return the pressure drop to normal.
- Ensure that the liquid pH is in the correct range and liquid flow rate is appropriate.
- Observe the stack and areas near the stack to ensure that there is no fallout from the mist eliminator, any discoloration of the stack or adjacent areas or a mud lip around the stack. Rinsing the mist eliminator will eliminate any fallout.

The following activities must be conducted **each week**:

- Check liquid pressure gauges on supply headers to monitor for problems such as nozzle pluggage, header pluggage, and nozzle erosion. Pluggage problems are indicated by higher than normal pressure and erosion problems are indicated by less than normal pressures. If the liquid pressure is out of the normal range, corrective action will be taken within 8 hours to return the scrubber to proper operation.

The following activities must be performed **each quarter**:

- Conduct a walk-through inspection of the entire system and look for leaks. If leaks in the system are detected, the appropriate measures for remediation will be implemented within 12 hours.

The following activities must be conducted **semiannually**:

- An internal inspection of the wet scrubber to check for signs of corrosion, erosion, plugged or eroded spray nozzles, solids deposits in tray orifices and packed beds, and solids accumulation in the mist eliminators.

Maintenance records will be maintained indicating that required activities have been completed.

## 4.6 Proper Operation of the WWTP

This DAF was designed to meet the current City POTW permit which limits TSS, BOD, FOG, and pH. The DAF system is operated in batch mode with a recommended flow rate of 30-40 gpm with a maximum of 60 gpm. The amount and composition of wastewater can vary and the system may operate longer some days than others, depending on the flow from the three recycle tanks. The automatic controllers monitor flow rate to the DAF system, as well as other parameters; these are recorded every four hours while the system is operating. The City's POTW Permit requires periodic tests to ensure compliance and, in some cases, the City may come to the site to witness or administer tests.

Monitoring oxidation reduction potential (ORP) is an additional process control mechanism that can be used to ensure that the nanobubbles are operating as they should. The nanobubbles manufacturer recommended a continuous monitor in Tank 15 with a 10 sec lag time and controller that will log historical data and maintain ORP at a specific positive level. The system will alarm if the ORP is not maintained at that level. The analog signal will be available on the control panel. Until the final system is in operation, Crimson will not be able to finalize the control panel. But Crimson plans to record the average daily ORP to demonstrate proper operation of the system. Crimson Holdings will maintain a positive ORP in the tank. This will ensure that noxious odors are not generated and emitted from the WWTP. ORP measures the ability (or *potential*) of the wastewater to permit specific biological reactions (oxidation or reduction). Oxidation occurs under aerobic conditions and reduction occurs under anaerobic conditions. ORP is measured in millivolts, with no correction for solution temperature. ORP is not a measurement of concentration directly, but of activity level. There is a correlation between ORP and the rate of inactivation of aerobic bacteria. ORP is measured with a probe which uses millivolts to measure electrical potential. The more positive an ORP reading is, the more concentrated the oxidizers, such as dissolved oxygen,



are and more likely the system is to be aerobic. Conversely, the more negative the ORP reading, the more concentrated reducing agents like hydrogen sulfide are present, making the system more anaerobic. ORP can provide an indicator of the presence of hydrogen sulfide and other odor causing compounds in wastewater.

Because increasing the oxygen in the system too much can cause upsets in the system, Crimson Holdings must be careful not to react too quickly or overreact to instantaneous measurements. Crimson Holdings will monitor ORP and will make changes in the nanobubbles system if the ORP remains negative for more than two hours.

## 5.0 Documenting Odor Control Activities and Odors

While odors will be adequately minimized by complying with the air permit in conjunction with this NOMP, the level of odors anticipated is not zero. In addition, because activities and raw materials at the facility can vary as can with meteorological conditions, it is important to have a mechanism for neighbors to notify the facility of complaints as well as the ability to communicate changes to complainants. Crimson Holdings has committed to conducting its own odor investigations and to identify potential odor issues before they become noticeable to the general public.

### 5.1 Odor Investigations

Crimson Holdings staff does a daily walk around the perimeter of the facility to ascertain the effectiveness of its odor control program. Observations include:

- Date and time observations were conducted
- Wind speed and direction
- Weather conditions
- Observation type: Daily, New Supplier, Process Change (with details), Complaint Investigation
- Observation route
- Identification of any related odors on the route map, if needed

Additional observations shall be conducted if a new supplier is processed, changes to the process have occurred, or complaint investigation has been launched. An example Odor Investigation form is provided in Appendix 4. Once the scrubber is installed and been operating 30 days, Crimson Holdings plans to reduce the walks to three times per week.

### 5.2 Addressing Odor Complaints

To facilitate ready communication with the facility, Crimson Holdings set up a website for neighbors to make complaints, which can be used by the facility to track complaints as well. It also allows the company to provide interested parties with updates regarding odor mitigation activities. The link to the website is:

<https://forms.office.com/r/wHwY9TzZxy>

If a complaint is registered, the following information will be collected from the complainant, where possible:

- Time of the odor
- Location of the odor
- Description of the odor
- Severity of the odor
- Return phone number and/or email of the complainant

Appendix 5 provides a form that can be used to record information on an odor complaint and will allow follow-up by Crimson Holdings. Subsequent to a complaint, Crimson Holdings will undergo an internal investigation to attempt to validate the complaint and evaluate the need for corrective action(s). This would be especially useful in the event that the complaint was also logged by EGLE.

In the event that complaints are received by Crimson Holdings, a phased approach will be taken in which additional measures will be implemented until it appears that the odors have been addressed.

First, a complete investigation will be initiated for each complaint and results will be documented. The following information can be used to assess the odor:

- Production processes and materials usage at the time of the complaint.
- Meteorological data at the time of the complaint, such as humidity, wind speed and direction, precipitation, etc.
- Any unusual projects or work being completed at the time of the complaint.
- A visual inspection of the stack, wastewater treatment plant system, and sludge tank stack.
- A visual inspection of adjacent properties from public right of ways, to observe if any unusual operations or conditions exist.

In the event that odors are confirmed, several options are available to Crimson Holdings to reduce odors from the powdered egg manufacturing. These include improving housekeeping, raising the stack height, upgrading the ventilation system, or the use of additional odor neutralizing or masking agents. If necessary, this NOMP will be updated.

## 6.0 Malfunction Reporting

Under Rule 912, Crimson Holdings must have a system to report startup, shutdowns, or malfunctions that result in excess emissions. To ensure compliance with Rule 901, Crimson Holdings will monitor the process for a bypass or failure of its air pollution control systems. If that bypass or failure lasts more than two hours and results in excess emissions, Crimson Holdings will report the malfunction to the EGLE District Office in Jackson (517.285.4797; fax: 517.416.5992). This report can be phoned in, emailed, or faxed; it should be made as soon as possible and **must** be made within 2 days of the incident or discovery. Information regarding the incident must include the date, time, and specific process equipment operating, as well as control equipment operating, nature of the issue, and corrective measures being taken. Within 10 days of the incident or its discovery, a written report must be submitted to:

Michigan Department of Environment, Great Lakes, and Energy  
Air Quality Division – Jackson District Office  
301 East Louis Glick Highway  
Jackson, MI 49201

General phone: 517.780.7690  
24-hour Pollution Emergency Alert System: 800.292.4706

The report must include:

- Date and time of incident
- Probable causes or reasons for the incident
- Information regarding the process equipment operating at the time of incident and an estimate of excess emissions, if possible
- Summary of actions taken to correct and prevent a recurrence

An example form is provided in Appendix 6 that can be used to record the information required for reporting.

## **7.0 Changes to the NOMP**

### **7.1 Amending the NOMP**

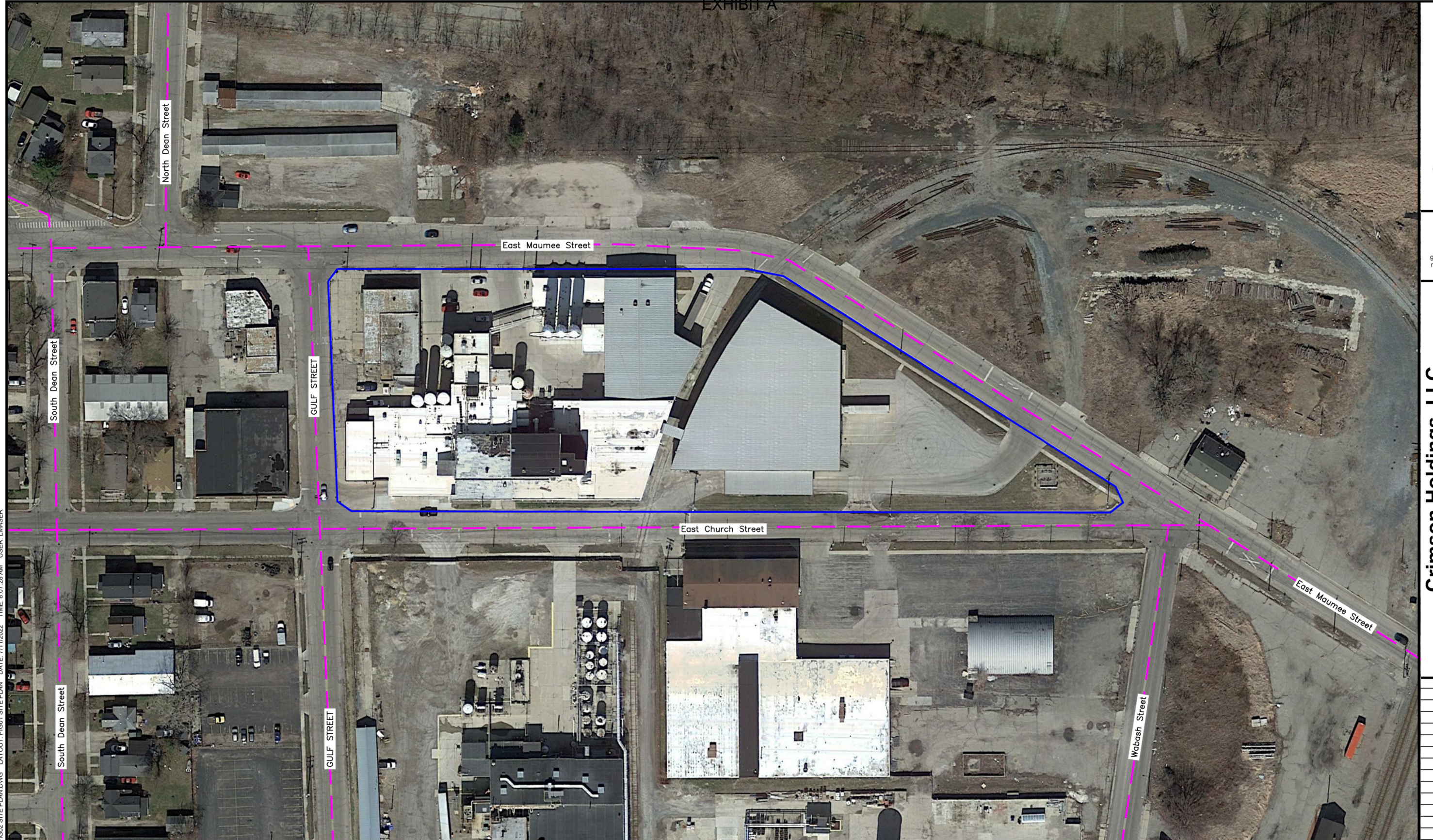
If the NOMP fails to address, or inadequately addresses, odor management, Crimson Holdings will amend this plan within 30 days. Crimson Holdings will also update the plan if new equipment installation may affect odor, or if requested to do so by the EGLE Air Quality Department (AQD) District Supervisor.

### **7.2 Submitting the NOMP for Approval**

Crimson Holdings will also submit a copy of this NOMP to the EGLE-AQD District Supervisor as part of its PTI Application. If the plan is subsequently amended, such amendments will also be submitted to the EGLE-AQD District Supervisor. In the interim, between plan submittal and approval, Crimson Holdings will implement appropriate corrective measures and operational controls to minimize odors.

# Figures

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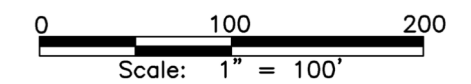


LEGEND

- ROAD 
- SITE BOUNDARY 



SITE PLAN



Hard copy is intended to be 11"x17" when plotted. Scale(s) indicated and graphic quality may not be accurate for any other size.

**Crimson Holdings, LLC**  
 1336 East Maumee Street, Adrian, Michigan 49221

Nuisance Management Plan

PROJECT NO.  
220602

FIGURE NO.  
**1**

# Appendix 1

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# PRODUCT BULLETIN

## ODOR CONTROL—ODOR NEUTRALIZER OC9118

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### GENERAL DESCRIPTION

CHEMTREAT OC9118 is a highly effective concentrated multicomponent blend of odor neutralizing compounds. OC9118 is specifically formulated to eliminate nuisance odors when applied using mist spray technology. Unlike masking agents that overwhelm the malodor and actually increase overall odor intensity, OC9118 decreases overall odor intensity.

### TYPICAL PHYSICAL PROPERTIES

Form:	Clear, pink liquid
Odor:	Moderate
Viscosity:	< 100 CPS @ 20° C
pH:	~7.2
Specific Gravity:	1.003 @ 20°C
Density:	8.37 lbs/gal
Freeze Point:	32°F

*\*Please see the OC9118 SDS for specifics regarding safety and handling.*

### FEEDING, DOSAGE AND CONTROL

#### ***Feed System***

OC9118 is pre-mixed with water and fed at a typical dilution rate of 1 part product to 200–300 parts of water. The solution must be delivered through a properly designed feed system to ensure desired efficacy. Proper atomization of vapor allows intimate and thorough mixing with the malodor. ChemTreat representatives are trained to assist with specific applications.

## *Dosage*

The dosage of **OC9118** depends on the level of nuisance malodor. Feed rates should be established with the guidance of a ChemTreat representative. Store above freeze point. If **OC9118** freezes, then thaw and mechanical mixing is required.







# SAFETY DATA SHEET

## Section 1. Chemical Product and Company Identification

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<b>Product Name:</b>	ChemTreat OC9118
<b>Product Use:</b>	Odor Control
<b>Supplier's Name:</b>	ChemTreat, Inc.
<b>Emergency Telephone Number:</b>	(800)424-9300 (Toll Free)
<b>Address (Corporate Headquarters):</b>	5640 Cox Road Glen Allen, VA 23060
<b>Telephone Number for Information:</b>	(800)648-4579
<b>Date of SDS:</b>	February 7, 2019
<b>Revision Date:</b>	February 7, 2019
<b>Revision Number:</b>	19020701AN

## Section 2. Hazard(s) Identification

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<b>Signal Word:</b>	None
<b>GHS Classification(s):</b>	Non-Hazardous Substance
<b>Hazard Statement(s):</b>	Non-Hazardous Substance
<b>Precautionary Statement(s):</b>	No significant health risks are expected from exposures under normal conditions of use.
<b>Prevention:</b>	None.
<b>Response:</b>	None.
<b>Storage:</b>	None.
<b>Disposal:</b>	None.
<b>System of Classification Used:</b>	Classification under 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).
<b>Hazards Not Otherwise Classified:</b>	None.



### Section 3. Composition/Hazardous Ingredients

---

Component	CAS Registry #	Wt. %
Components not listed are either non hazardous or in concentration of less than 1%	N/A	N/A

**Comments** If chemical identity and/or exact percentage of composition has been withheld, this information is considered to be a trade secret.

### Section 4. First Aid Measures

---

**Inhalation:** Call a POISON CENTER or doctor/physician if you feel unwell.

**Eyes:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention.

**Skin:** Call a poison center or doctor/physician if you feel unwell.

**Ingestion:** Rinse mouth. Call a poison center or doctor/physician if you feel unwell.

**Most Important Symptoms:** N/D

**Indication of Immediate Medical Attention and Special Treatment Needed, If Necessary:** N/A

### Section 5. Fire Fighting Measures

---

**Flammability of the Product:** Not flammable.

**Suitable Extinguishing Media:** Use extinguishing media suitable to surrounding fire.

**Specific Hazards Arising from the Chemical:** None known.

**Protective Equipment:** If product is involved in a fire, wear full protective clothing including a positive-pressure, NIOSH approved, self-contained breathing apparatus.



## Section 6. Accidental Release Measures

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<b>Personal Precautions:</b>	Use appropriate Personal Protective Equipment (PPE).
<b>Environmental Precautions:</b>	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains, and sewers.
<b>Methods for Cleaning up:</b>	Contain and recover liquid when possible. Flush spill area with water spray.
<b>Other Statements:</b>	None.

## Section 7. Handling and Storage

---

<b>Handling:</b>	Wear appropriate Personal Protective Equipment (PPE) when handling this product. Do not get in eyes, or on skin and clothing. Wash thoroughly after handling. Do not ingest. Avoid breathing vapors, mist or dust.
<b>Storage:</b>	Store away from incompatible materials (see Section 10). Store at ambient temperatures. Keep container securely closed when not in use. Label precautions also apply to empty container. Recondition or dispose of empty containers in accordance with government regulations. For Industrial use only. Protect from heat and sources of ignition. Do not freeze. Store above Freeze Point. If freezes, then mechanical mixing is required.

## Section 8. Exposure Controls/Personal Protection

---

### Exposure Limits

Component	Source	Exposure Limits
Components not listed are either non hazardous or in concentration of less than 1%	N/E	N/E

<b>Engineering Controls:</b>	Use only with adequate ventilation. The use of local ventilation is recommended to control emission near the source.
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**Personal Protection**

<b>Eyes:</b>	Safety glasses are recommended if risk of eye contact.
<b>Skin:</b>	Wear butyl rubber or neoprene gloves. Wash them after each use and replace as necessary. If conditions warrant, wear protective clothing such as boots, aprons, and coveralls to prevent skin contact.
<b>Respiratory:</b>	If misting occurs, use NIOSH approved organic vapor/acid gas dual cartridge respirator with a dust/mist prefilter in accordance with 29 CFR 1910.134.

**Section 9. Physical and Chemical Properties**

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<b>Physical State and Appearance:</b>	Liquid, Pink, Clear
<b>Specific Gravity:</b>	1.003 @ 20°C
<b>pH:</b>	7.2 @ 20°C, 100.0%
<b>Freezing Point:</b>	32°F
<b>Flash Point:</b>	N/A
<b>Odor:</b>	Moderate
<b>Melting Point:</b>	N/A
<b>Initial Boiling Point and Boiling Range:</b>	>212°F
<b>Solubility in Water:</b>	Complete
<b>Evaporation Rate:</b>	N/D
<b>Vapor Density:</b>	N/D
<b>Molecular Weight:</b>	N/D
<b>Viscosity:</b>	<100 CPS @ 20°C
<b>Flammability (solid, gas):</b>	N/D
<b>Flammable Limits:</b>	N/A
<b>Autoignition Temperature:</b>	N/A
<b>Density:</b>	8.37 LB/GA
<b>Vapor Pressure:</b>	N/D
<b>% VOC:</b>	N/D
<b>Odor Threshold</b>	N/D
<b>n-octanol Partition Coefficient</b>	N/D
<b>Decomposition Temperature</b>	N/D



## Section 10. Stability and Reactivity

---

<b>Chemical Stability:</b>	Stable at normal temperatures and pressures.
<b>Incompatibility with Various Substances:</b>	Strong oxidizers.
<b>Hazardous Decomposition Products:</b>	Oxides of carbon.
<b>Possibility of Hazardous Reactions:</b>	None known.
<b>Reactivity:</b>	N/D
<b>Conditions To Avoid:</b>	N/D

## Section 11. Toxicological Information

---

### Acute Toxicity

Chemical Name	Exposure	Type of Effect	Concentration	Species
ChemTreat OC9118	N/D	N/D	N/D	N/D

### Carcinogenicity Category

Component	Source	Code	Brief Description
Components not listed are either non hazardous or in concentration of less than 1%	N/E	N/E	N/E

**Likely Routes of Exposure:** N/D

### Symptoms

<b>Inhalation:</b>	N/D
<b>Eye Contact:</b>	N/D
<b>Skin Contact:</b>	N/D
<b>Ingestion:</b>	N/D

**Skin Corrosion/Irritation:** N/D



**Serious Eye Damage/Eye Irritation:** N/D

**Sensitization:** N/D

**Germ Cell Mutagenicity:** N/D

**Reproductive/Developmental Toxicity:** N/D

**Specific Target Organ Toxicity**

**Single Exposure:** N/D

**Repeated Exposure:** N/D

**Aspiration Hazard:** N/D

**Comments:** None.

## Section 12. Ecological Information

### Ecotoxicity

Species	Duration	Type of Effect	Test Results
N/D	N/D	N/D	N/D

**Persistence and Biodegradability:** N/D

**Bioaccumulative Potential:** N/D

**Mobility In Soil:** N/D

**Other Adverse Effects:** N/D

**Comments:** Not tested.



### Section 13. Disposal Considerations

Dispose of in accordance with local, state and federal regulations.

### Section 14. Transport Information

Controlling Regulation	UN/NA#:	Proper Shipping Name:	Technical Name:	Hazard Class:	Packing Group:
DOT	N/A	COMPOUND, INDUSTRIAL WATER TREATMENT, LIQUID	N/A	N/A	N/A

Note: N/A

### Section 15. Regulatory Information

#### Inventory Status

United States (TSCA):  
Canada (DSL/NDSL):

All ingredients listed.  
All ingredients listed.

#### Federal Regulations

##### SARA Title III Rules

##### Sections 311/312 Hazard Classes

Fire Hazard:	No
Reactive Hazard:	No
Release of Pressure:	No
Acute Health Hazard:	Yes
Chronic Health Hazard:	No

#### Other Sections

Component	Section 313 Toxic Chemical	Section 302 EHS TPQ	CERCLA RQ
Components not listed are either non hazardous or in concentration of less than 1%	N/A	N/A	N/A

Comments: None.

**State Regulations****California Proposition 65:** None known.**Special Regulations**

Component	States
Components not listed are either non hazardous or in concentration of less than 1%	None.

**Compliance Information****NSF:** N/A**Food Regulations:** N/A**KOSHER:** This product has not been evaluated for Kosher approval.**Halal:** This product has not been evaluated for Halal approval.**FIFRA:** N/A**Other:** None**Comments:** None.**Section 16. Other Information**

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**HMIS Hazard Rating**

<b>Health:</b>	0
<b>Flammability:</b>	0
<b>Physical Hazard:</b>	0
<b>PPE:</b>	X

**Notes:** The PPE rating depends on circumstances of use. See Section 8 for recommended PPE.  
The Hazardous Material Information System (HMIS) is a voluntary, subjective alpha-numeric symbolic system for recommending hazard risk and personal protection equipment information. It is a subjective rating system based on the evaluator's understanding of the chemical associated risks. The end-user must determine if the code is appropriate for their use.





## Abbreviations

Abbreviation	Definition
<	Less Than
>	Greater Than
ACGIH	American Conference of Governmental Industrial Hygienists
EHS	Environmental Health and Safety Dept
N/A	Not Applicable
N/D	Not Determined
N/E	Not Established
OSHA	Occupational Health and Safety Dept
PEL	Personal Exposure Limit
STEL	Short Term Exposure Limit
TLV	Threshold Limit Value
TWA	Time Weight Average
UNK	Unknown

**Prepared by:** Product Compliance Department; ProductCompliance@chemtreat.com

**Revision Date:** February 7, 2019

## Disclaimer

Although the information and recommendations set forth herein (hereinafter "information") are presented in good faith and believed to be correct as of the date hereof, ChemTreat, Inc. makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will ChemTreat, Inc. be responsible for damages of any nature whatsoever resulting from the use or reliance upon information. No representation or warranties, either expressed or implied, of merchantability, fitness for a particular purpose, or of any other nature are made hereunder with respect to information or the product to which information refers.

## EXHIBIT A



3660 Center Road; #204  
 Brunswick, OH 44212  
 330.242.0015  
 info@solutiotek.com  
 www.solutiotek.com

*CONFIDENTIAL COMPONENTS CONTRIBUTING TO  
 THE TOTAL ORGANIC CHEMICAL CONTENT (OC AND VOC)*

CAS	Description	Quantity
8050-15-5	ABALYN	<0.01%
111-87-5	ALCOHOL C-08 (SEE CAPRYL ALC.)	<0.01%
112-45-8	ALDEHYDE C-11 EN	<0.01%
112-44-7	ALDEHYDE C-11 UNDECYLIC	<0.01%
104-61-0	ALDEHYDE C-18	<0.01%
628-63-7	AMYL ACETATE	0.01 – 0.10%
106-27-4	AMYL BUTYRATE	<0.01%
122-40-7	AMYL CINNAMIC ALDEHYDE	<0.01%
4180-23-8	ANETHOL	<0.01%
123-11-5	ANISIC ALDEHYDE	<0.01%
100-52-7	BENZALDEHYDE	<0.01%
140-11-4	BENZYL ACETATE	0.01 – 0.10%
111-76-2	BUTYL CELLOSOLVE	0.5 – 1.00%
6485-40-1	CARVACROL TECH	<0.01%
68990-83-0	CEDARWOOD TEXAS	<0.01%
104-55-2	CINNAMIC ALDEHYDE	<0.01%
8000-29-1	CITRONELLA CEYLON	0.01 – 0.10%
8015-97-2	CLOVE LEAF OIL	<0.01%
68917-29-3	CLOVE TERPENES	0.01 – 0.10%
91-64-5	COUMARIN	<0.01%
103-95-7	CYCLAMEN ALDEHYDE	<0.01%
84-66-2	DIETHYLPHTHALATE	0.01 – 0.10%
5989-27-5	LIMONENE D	0.1 – 0.5%
68956-56-9	DIPENTENE PG	0.01 – 0.10%
101-84-8	DIPHENYL OXIDE	<0.01%
141-78-6	ETHYL ACETATE	0.01 – 0.10%
105-54-4	ETHYL BUTYRATE	0.01 – 0.10%
8000-48-4	EUCALYPTUS 80/85	<0.01%
97-53-0	EUGENOL	0.01 – 0.10%
106-24-1	GERANIOL BJ	0.01 – 0.10%
8050-15-5	HERCOLYN D	0.01 – 0.10%
9036-19-5	IGEPAL CA630	1.0 – 6.0%
125-12-2	ISO BORNYL ACETATE	0.01 – 0.10%
8016-78-2	LAVENDER SPIKE	<0.01%

## EXHIBIT A

8007-02-1	LEMON GRASS OIL (GUATAMALA)	0.01 – 0.10%
78-70-6	LINALOOL 925	<0.01%
134-20-3	METHYL ANTHRANILATE	0.01 – 0.10%
111-13-7	METHYL HEXYL KETONE	<0.01%
1335-46-2	METHYL IONONE GAMMA SUPREME	<0.01%
119-36-8	METHYL SALICYLATE	0.01 – 0.10%
81-14-1	MUSK KETONE	<0.01%
8008-57-9	ORANGE OIL VALENCIA	<0.01%
103-82-2	PHENYL ACETIC ACID	<0.01%
60-12-8	PHENYL ETHYL ALCOHOL	<0.01%
8006-77-6	PIMENTO LEAF OIL	<0.01%
8000-25-7	ROSEMARY SPANISH	<0.01%
93-92-5	STYRALLYL ACETATE	<0.01%
98-55-5	TERPINEOL 900	0.1 – 0.5%
80-26-2	TERPINYL ACETATE	0.1 – 0.5%
8002-09-3	UNIPINE 85	0.01 – 0.10%
121-33-5	VANILLIN	0.01 – 0.10%
32388-55-9	VERTOFIX	<0.01%
93-04-9	YARA YARA	<0.01%



## PathoCide

### Safety Data Sheet

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations and According to the Hazardous Products Regulation (February 11, 2015).

Revision Date: 07/05/2021

Date of Issue: 7/5/2021

Version: 4

## SECTION 1: IDENTIFICATION

### Product Identifier

**Product Form:** Mixture

**Product Name:** PathoCide [generated on-site]

**Synonyms:** Hypochlorous Acid Solution

### Intended Use of the Product

Sanitizer - Disinfectant as produced by appropriately regulated on-site generator.

### Name, Address, and Telephone of the Responsible Party

#### **Company**

PathoSans from Spraying Systems Co.

100 W. Lake Drive

Glendale Heights, IL 60139

833-553-2648

www.pathosans.com

### Emergency Telephone Number

**Emergency Number** : 1-800-424-9300/+1 703-527-3887

## SECTION 2: HAZARDS IDENTIFICATION

### Classification of the Substance or Mixture

#### **GHS-US/CA Classification**

This substance does not meet the definition of a hazardous substance or preparation as defined by the OSHA and described in 29 CFR 1910.1200(d).

### Label Elements

#### **GHS-US/CA Labeling**

**Hazard Pictograms (GHS-US/CA)** : None

**Signal Word (GHS-US/CA)** : None

**Hazard Statements (GHS-US/CA)** : None

**Precautionary Statements (GHS-US/CA)** : None

### Other Hazards

Exposure may aggravate pre-existing eye, skin, or respiratory conditions.

### Unknown Acute Toxicity (GHS-US/CA)

No data available

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### Mixture

Name	Product Identifier	% *	GHS Ingredient Classification
Water	(CAS No) 7732-18-5	99.97-99.9835	Not classified
Hypochlorous acid	(CAS No) 7790-92-3	0.0165-.0300	Not classified

Full text of H-phrases: see section 16

\*Percentages are listed in weight by weight percentage (w/w%) for liquid and solid ingredients. Gas ingredients are listed in volume by volume percentage (v/v%).

## SECTION 4: FIRST AID MEASURES

### Description of First Aid Measures

**General:** Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

**Inhalation:** If symptoms occur: Go into open air and ventilate suspected area. Obtain medical attention if breathing difficulty persists.

**Skin Contact:** If symptoms occur: Remove contaminated clothing. Rinse affected area with water for at least 5 minutes. Obtain medical attention if irritation develops or persists.

# PathoCide

## Safety Data Sheet

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations and According to the Hazardous Products Regulation (February 11, 2015).

**Eye Contact:** If symptoms occur: Rinse cautiously with water for at least 5 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if redness, pain, or irritation occurs.

**Ingestion:** If symptoms occur: Rinse mouth. Do NOT induce vomiting. Obtain medical attention.

### **Most Important Symptoms and Effects Both Acute and Delayed**

**General:** Not expected to present a significant hazard under anticipated conditions of normal use.

**Inhalation:** Prolonged exposure may cause irritation.

**Skin Contact:** Prolonged exposure may cause skin irritation.

**Eye Contact:** May cause slight irritation to eyes.

**Ingestion:** Ingestion may cause adverse effects.

**Chronic Symptoms:** None expected under normal conditions of use.

### **Indication of Any Immediate Medical Attention and Special Treatment Needed**

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

## **SECTION 5: FIRE FIGHTING MEASURES**

### **Extinguishing Media**

**Suitable Extinguishing Media:** Water spray, dry chemical, foam, carbon dioxide.

**Unsuitable Extinguishing Media:** Do not use a heavy water stream. Use of heavy stream of water may spread fire.

### **Special Hazards Arising from the Substance or Mixture**

**Fire Hazard:** Not flammable.

**Explosion Hazard:** Product is not explosive.

**Reactivity:** May be corrosive to metals. Contact with metals may evolve flammable hydrogen gas. May emit chlorine gas when mixed with acids or ammonia.

### **Advice for Firefighters**

**Precautionary Measures Fire:** Exercise caution when fighting any chemical fire.

**Firefighting Instructions:** Use water spray or fog for cooling exposed containers.

**Protection During Firefighting:** Do not enter fire area without proper protective equipment, including respiratory protection.

**Hazardous Combustion Products:** Irritating or toxic vapors.

### **Reference to Other Sections**

Refer to Section 9 for flammability properties.

## **SECTION 6: ACCIDENTAL RELEASE MEASURES**

### **Personal Precautions, Protective Equipment and Emergency Procedures**

**General Measures:** Avoid prolonged contact with eyes, skin and clothing. Avoid breathing (vapor, mist, spray).

#### **For Non-Emergency Personnel**

**Protective Equipment:** Use appropriate personal protection equipment (PPE).

**Emergency Procedures:** Evacuate unnecessary personnel.

#### **For Emergency Personnel**

**Protective Equipment:** Equip cleanup crew with proper protection.

**Emergency Procedures:** Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit. Ventilate area.

#### **Environmental Precautions**

Prevent entry to sewers and public waters.

#### **Methods and Materials for Containment and Cleaning Up**

**For Containment:** Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

**Methods for Cleaning Up:** Clean up spills immediately and dispose of waste safely. Transfer spilled material to a suitable container for disposal. Contact competent authorities after a spill. Absorb spillage to prevent material damage.

#### **Reference to Other Sections**

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

## **SECTION 7: HANDLING AND STORAGE**

### **Precautions for Safe Handling**

**Additional Hazards When Processed:** May be corrosive to metals.

# PathoCide

## Safety Data Sheet

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations and According to the Hazardous Products Regulation (February 11, 2015).

**Precautions for Safe Handling:** Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Avoid prolonged contact with eyes, skin and clothing. Avoid breathing vapors, mist, spray.

**Hygiene Measures:** Handle in accordance with good industrial hygiene and safety procedures.

### Conditions for Safe Storage, Including Any Incompatibilities

**Technical Measures:** Comply with applicable regulations.

**Storage Conditions:** Keep container closed when not in use. Store in a dry, cool place. Keep/Store away from direct sunlight, extremely high or low temperatures and incompatible materials. Store in corrosive resistant container with a resistant inner liner.

**Incompatible Materials:** Strong acids, strong bases, strong oxidizers.

### Specific End Use(s)

Sanitizer - Disinfectant as produced by appropriately registered device.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control Parameters

For substances listed in section 3 that are not listed here, there are no established exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), OSHA (PEL), Canadian provincial governments, or the Mexican government.

### Exposure Controls

**Appropriate Engineering Controls:** Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed.

**Materials for Protective Clothing:** Not required for normal conditions of use. As conditions warrant: Gloves. Protective clothing. Protective goggles.

**Hand Protection:** Wear protective gloves.

**Eye Protection:** Chemical goggles or safety glasses.

**Skin and Body Protection:** Wear suitable protective clothing.

**Respiratory Protection:** If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn. In case of inadequate ventilation, oxygen deficient atmosphere, or where exposure levels are not known wear approved respiratory protection.

**Other Information:** When using, do not eat, drink, or smoke

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### Information on Basic Physical and Chemical Properties

<b>Physical State</b>	: Liquid
<b>Appearance</b>	: Clear
<b>Odor</b>	: Slight chlorine odor, no fragrance added
<b>Odor Threshold</b>	: Not available
<b>pH</b>	: 4.5 – 6.5
<b>Evaporation Rate</b>	: Not available
<b>Melting Point</b>	: Not available
<b>Freezing Point</b>	: 0 °C (32 °F)
<b>Boiling Point</b>	: 100 °C (212 °F)
<b>Flash Point</b>	: Not available
<b>Auto-ignition Temperature</b>	: Not available
<b>Decomposition Temperature</b>	: Not available
<b>Flammability (solid, gas)</b>	: Not available
<b>Lower Flammable Limit</b>	: Not available
<b>Upper Flammable Limit</b>	: Not available
<b>Vapor Pressure</b>	: Not available
<b>Relative Vapor Density at 20°C</b>	: Not available
<b>Relative Density</b>	: Not available
<b>Specific Gravity</b>	: 1
<b>Solubility</b>	: Water: Soluble
<b>Partition Coefficient: N-Octanol/Water</b>	: Not available

# PathoCide

## Safety Data Sheet

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations and According to the Hazardous Products Regulation (February 11, 2015).

**Viscosity** : 1.3 cP

### SECTION 10: STABILITY AND REACTIVITY

**Reactivity:** May be corrosive to metals. Contact with metals may evolve flammable hydrogen gas. May emit chlorine gas when mixed with acids or ammonia.

**Chemical Stability:** Stable under recommended handling and storage conditions (see section 7).

**Possibility of Hazardous Reactions:** Hazardous polymerization will not occur.

**Conditions to Avoid:** Direct sunlight, extremely high or low temperatures, and incompatible materials.

**Incompatible Materials:** Strong acids, strong bases, strong oxidizers. Metals. May be corrosive to metals. Ammonia.

**Hazardous Decomposition Products:** None known.

### SECTION 11: TOXICOLOGICAL INFORMATION

#### Information on Toxicological Effects - Product

**Acute Toxicity (Oral):** Not classified

**Acute Toxicity (Dermal):** Not classified

**Acute Toxicity (Inhalation):** Not classified

**LD50 and LC50 Data:** Not available

**Skin Corrosion/Irritation:** Not classified

**pH:** 4.5 – 6.5

**Eye Damage/Irritation:** Not classified

**pH:** 4.5 – 6.5

**Respiratory or Skin Sensitization:** Not classified

**Germ Cell Mutagenicity:** Not classified

**Carcinogenicity:** Not classified

**Specific Target Organ Toxicity (Repeated Exposure):** Not classified

**Reproductive Toxicity:** Not classified

**Specific Target Organ Toxicity (Single Exposure):** Not classified

**Aspiration Hazard:** Not classified

**Symptoms/Injuries After Inhalation:** Prolonged exposure may cause irritation.

**Symptoms/Injuries After Skin Contact:** Prolonged exposure may cause skin irritation.

**Symptoms/Injuries After Eye Contact:** May cause slight irritation to eyes.

**Symptoms/Injuries After Ingestion:** Ingestion may cause adverse effects.

**Chronic Symptoms:** None expected under normal conditions of use.

#### Information on Toxicological Effects - Ingredient(s)

**LD50 and LC50 Data:** Not available

### SECTION 12: ECOLOGICAL INFORMATION

#### Toxicity

**Ecology - General:** Not classified.

#### Persistence and Degradability

PathoCide	
<b>Persistence and Degradability</b>	Not established.

#### Bioaccumulative Potential

PathoCide	
<b>Bioaccumulative Potential</b>	Not established.

**Mobility in Soil** Not available

#### Other Adverse Effects

**Other Information:** Avoid release to the environment.

# PathoCide

## Safety Data Sheet

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations and According to the Hazardous Products Regulation (February 11, 2015).

### SECTION 13: DISPOSAL CONSIDERATIONS

**Waste Disposal Recommendations:** Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations.

**Additional Information:** Container may remain hazardous when empty. Continue to observe all precautions.

**Ecology - Waste Materials:** Avoid release to the environment.

### SECTION 14: TRANSPORT INFORMATION

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

#### In Accordance with DOT

This product is classified (per 49 CFR 173.137) by the U.S. Department of Transportation, as follows.

**Proper Shipping Name** : Non-Regulated Material  
**Hazard Class** : None  
**Identification Number** : None  
**Label Codes** : None  
**Packing Group** : N/A  
**ERG Number** : N/A

### SECTION 15: REGULATORY INFORMATION

#### US Federal Regulations

##### **Water (7732-18-5)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory

##### **Hypochlorous acid (7790-92-3)**

Listed on the United States TSCA (Toxic Substances Control Act) inventory

#### US State Regulations

Neither this product nor its chemical components appear on any US state lists.

#### Canadian Regulations

##### **Water (7732-18-5)**

Listed on the Canadian DSL (Domestic Substances List)

##### **Hypochlorous acid (7790-92-3)**

Listed on the Canadian NDSL (Non-Domestic Substances List)

### SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

**Revision Date** : 07/05/2021

**Other Information** : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200 and Canada's Hazardous Products Regulations (HPR).

#### **GHS Full Text Phrases:**

Met. Corr. 1	Corrosive to metals Category 1
H290	May be corrosive to metals

*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.*

NA GHS SDS 2015 (US, Can, Mex)



# Appendix 2

---

EXHIBIT A



Date Received: \_\_\_\_\_

<b>Incoming Liquid Egg Results</b>
<b>FM 029</b>
<b>Revised 10/13/2022</b>

Lot Code	Tank Received Into	Tanker or Tote	Supplier-Location	pH	Temp.	Moisture	Total Solids	Protein	Fat	Ash	Odor A=Accept R=Reject	Foreign Material A=Accept R=Reject	Cleared to Receive? If NO document below	Initials

Comments: \_\_\_\_\_

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# Appendix 3

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EXHIBIT A

Appendix 3 - Example Summary of Master Sanitation Schedule  
Crimson Holdings, Adrian, Michigan

Area	Weekly Task	Monthly Task	Quarterly Task	Semiannual Task	Annual Task
Receiving	Water and sanihoses, scrub cleaned and inspected for nicks, tears, damage	West Bay walls foam cleaned and sanitized			
	Clean hot water and mandate hoses.	West Bay floor and platform area foamed, scrubbed, and sanitized			
	Bay 3 floor drains (2) debris removed, cleaned and sanitized.	West Bay trash containers foam cleaned and sanitized			
	Restroom cleaned and floor swept and mopped. Stock cabinet				
	Inspect cleaning utensils replace as needed (worn, damaged, stained, etc.)				
Separator Area	Exterior of Tanks 1, 2, 3 foam cleaned	Wall ledges and glass block windows foam cleaned	Wall fans and exhaust fans cleaned in Separator area		
	Clean hand sinks: Employee Entrance, RO Room (2), West Bay Entrance	Trash cans cleaned and sanitized: RO Room (2), Tank 1 bench, West Bay, Main Entrance			
	Separator COP trough scrubbed cleaned	CIP and Parts Work table tops and legs, caps and baskets clean			
	Tank hallway floors and walls foamed, cleaned and sanitized	Clean storage containers (green scrub pads, filters, etc.)			
	Floors under tanks 8,9 foamed, scrubbed and sanitized				
	Floor drains under T-8 and T-9 (2)				
	Mix area floors foamed, scrubbed and sanitized				
	MCC panel exteriors Ecowiped				
	Main floor employee doors cleaned and sanitized (6): Main enterence, Double door, Maintenance, Office, West Bay, Silo 6				
	Mandate and hot water hose scrub cleaned				
	Tank area floor drain cleaned and sanitized. In front of T-2 (1)				
	COP tank floor drains cleaned (2)				
	Press floor drains cleaned and sanitized (2)				
	Mix area floor drains cleaned and sanitized (6)				
Inspect cleaning utensils replace as needed (worn, damaged, stained etc.)					
RO System	RO Room floor drains cleaned and sanitized (4)	Ladders cleaned			
	RO room floors scrub cleaned and sanitized	Garbage Can (s) cleaned and sanitized			
Packaging	Clean Hand Hygiene Station	Sweep, mop, and sanitize Sifter Room floor (Including under tote filling platform) AND clean & sanitize floor drains (2)			
	Inspect cleaning utensils replace as needed (worn, damaged, stained etc.)	Sweep and mop Bag Room floor			

EXHIBIT A

Appendix 3 - Example Summary of Master Sanitation Schedule  
Crimson Holdings, Adrian, Michigan

Area	Weekly Task	Monthly Task	Quarterly Task	Semiannual Task	Annual Task
Packaging	Storage tubs clean interior and exterior on 5S shelving	Pallet Inspection and housekeeping			
	Clean trash cart	Clean and sanitize trash cans (Tote Room, Hygiene Station, & SAP Station) clean and sanitize			
		Saniwipe man entry doors (2-tote room, double doors, and 1- 25kg room)			
		Saniwipe blue speed roll up door			
		Clean exterior/tops of PPE lockers			
		Dry clean 50 lb Bag metal detector conveyor belt			
		Vacuum clean conveyors/ roller table in warehouse			
Warehouse	Main warehouse 18" perimeter clear and cleaned	Lower warehouse walls, beams, and window ledges cleaned of cobwebs and dust.	Upper warehouse 18" perimeter is clear of any debris, pallets, swept and mopped.	Clean Bulk Chemical Room South wall vents	Overhead lower warehouse beams and support structure
	Main warehouse organized and swept	Upper warehouse walls, beams and window ledges cleaned of cobwebs and dust.	New warehouse 18" perimeter is clear of any debris, pallets, swept and mopped.	Canning louvers vacuumed, exhaust fans, and/or heaters	
	Canline area organized and swept	Can Line Dock plates scrubbed clean	Can Line area: clean corners and around beams		
	Drum/Tote Room floor, floor drain and water hoses cleaned and sanitized.	Main warehouse floors scrubbed			
	Upper warehouse organized and swept	Canline area floors scrubbed			
	Chemical storage room organized, floors cleaned	Warehouse stairs swept and mopped			
	New warehouse bathroom cleaned and floor swept and mopped	Garbage can (s) cleaned and sanitized in Can Line, New and Upper Warehouse			
		Floor pylons (Wet Floor, Caution, and Safety)			
		Manually clean warehouse entry doors (dryer, dock door-canline, out to milk rec)			
		Inspection and wash down fork lift(s) (New, Upper & Main)			
		Clean under pallet racks - Upper warehouse			
		Clean under pallet racks - Main warehouse			
	New Warehouse Dock plates scrubbed clean				
Dryer/Evaporator Area	Dryer spray inspection sightglasses cleaned	Drier control panels cleaned (3-drier control room, sprays, superstructure)	Remove/ clean dryer sonic horns (2)	Yellow Tile walls around drier foam cleaned	
	Production Lab Cleaned (Counters Wiped down, Floor Swept and Mopped)	Nu-Con panel cleaned			
	Floors under and around Tank 17, swept, foam clean, and sanitize	Hot water and Mandate hoses scrub cleaned			
	Clean and sanitize drain under Tank 17 and Dryer Control Room. (2)	Dryer railings cleaned- around top of dryer			
	CIP #2 return line SS screen filter- inspect/ clean	Ecowipe production lab and upstairs Employee Doors cleaned and wiped down			
	Dryer control room floors foam cleaned and sanitized	Garbage Cans washed and sanitized			

**Appendix 3 - Example Summary of Master Sanitation Schedule**  
Crimson Holdings, Adrian, Michigan

Area	Weekly Task	Monthly Task	Quarterly Task	Semiannual Task	Annual Task
Dryer/Evaporator Area	Dryer stairs and decking is foam and scrubbed/ cleaned	Ecowipe clean storage containers (green scrub pads, filters, etc.)			
	Powder conveyor panel cleaned- next to dryer entry door				
	Dryer catwalk area swept / mopped and sanitized				
	Top of dryer swept and mopped				
	Inspect cleaning utensils replace as needed (worn, damaged, stained etc.)				
	Fanroom ledges, piping, panels dusted off				
	Fanroom floors swept / mopped and sanitized				
	Dryer airlock/ auger area dusted off and cleaned				
	Dryer base floor drains cleaned (5)				
	remove black marks from floor created by foot foamer user AC-55 red				
	Nu-con infeed hopper vent filter- powder removed				
	Dryer base floors foam cleaned and sanitized				
	Evaporator room floor area foamed and scrubbed cleaned and sanitized				
	Tank 26 floor area and SS stairs foamed and scrubbed cleaned and sanitized				
	Hand sink by T-17 cleaned				
Evap Room Floor Drains cleaned and Sanitized (4)					

- CIP clean in place (automated cleaning circuit of tanks and lines)
- COP clean out of place (manual cleaning)
- MCC Motor Control Center
- PPE personal protective equipment
- RO reverse osmosis
- SAP enterprise resource planning (ERP) computer station

# Appendix 4

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EXHIBIT A

Appendix 4 – Example Odor Investigation Log Sheet

Crimson Holdings, LLC

Adrian, Michigan

Date: \_\_\_\_\_ Weather Conditions: \_\_\_\_\_

Production Information: \_\_\_\_\_ Precipitation: Yes \_\_\_ No \_\_\_

Temperature: \_\_\_\_\_

Wind Direction and Velocity: \_\_\_\_\_

Odor Control and Application Rate: \_\_\_\_\_

Odor Investigation Summary	
Daily___ New Supplier___ Process Change (explain below):___ Complaint Investigation:___	
Investigation	Time: Duration: Area:
Recommended Changes in Odor Control	

Comments – Please describe intensity of odors, area that was investigated and other information.

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# Appendix 5

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EXHIBIT A

**ODOR COMPLAINT LOGGING FORM**

*For internal use only.*

To be completed by the Plant Manager when receiving a complaint

Date \_\_\_\_\_ Time of Report \_\_\_\_\_ Complainant \_\_\_\_\_

Address and Phone Number of Complainant \_\_\_\_\_

Description of Odor \_\_\_\_\_

Time Incident was Detected \_\_\_\_\_ a.m./p.m. Duration of Event \_\_\_\_\_

Has this happened before? How often? \_\_\_\_\_

Weather Conditions Sunny/Overcast/Other \_\_\_\_\_ Temperature \_\_\_\_\_ Humidity \_\_\_\_\_

Weather Conditions Precipitation \_\_\_\_\_ Wind Direction/Speed \_\_\_\_\_

Are there weather conditions or times the odor seems more noticeable? \_\_\_\_\_

Are there certain days of the week its more noticeable? \_\_\_\_\_

**Plant Conditions**

Current Production \_\_\_\_\_

Materials in Use \_\_\_\_\_

Housekeeping and Maintenance Proper? \_\_\_\_\_

Ventilation System Operating Properly? \_\_\_\_\_

Actions Taken and Time \_\_\_\_\_

Comments or Recommendations \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Form Completed by and date \_\_\_\_\_

Follow-up with Complainant and date \_\_\_\_\_

# Appendix 6

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EXHIBIT A

Appendix 6 – Example Malfunction Reporting Form

**ABNORMAL CONDITIONS/MALFUNCTION FOLLOW-UP REPORT**  
**Crimson Holdings, LLC**

Date of Incident: \_\_\_\_\_ Time of Incident: \_\_\_\_\_ Duration of Incident: \_\_\_\_\_

Description: \_\_\_\_\_

Odors (If applicable): \_\_\_\_\_

Emissions (if applicable): \_\_\_\_\_ Applicable Limit: \_\_\_\_\_

**Explanation of Incident (Include identification of the source, type, and quantity or magnitude of excess emissions and probable cause):**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Immediate Actions Taken to Minimize Emissions:**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Corrective Action Taken to Minimize or Prevent Recurrence:**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**AGENCY NOTIFICATION AND REPORTING**

The Facility Supervisor or his/her delegate will notify EGLE-AQD within 2 days of the occurrence:

EGLE-AQD Jackson District Office

Phone: 517.780.7690 Fax: 517.780.7855

**Date and Time Contacted:** \_\_\_\_\_ **Person(s) Contacted:** \_\_\_\_\_

**NOTE: During off hours, contact the Pollution Emergency Alert System 800.292.4706**

*A written follow-up report must be completed including cause and corrective/preventive actions and submitted to the EGLE-AQD within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal conditions or malfunction, whichever is first.*