

**FORM EQP 5111 ATTACHMENT A2
CHEMICAL AND PHYSICAL ANALYSES**

This document is an attachment to Gage Products Company's (Gage) 2024 RCRA permit renewal application Form EQP 5111. The administrative rules promulgated pursuant to Part 111, Hazardous Waste Management, of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451), being R 299.9504, R 299.9508, and R 299.9605, and Title 40 of the Code of Federal Regulations (CFR) §§264.13(a) and 270.14(b)(2), establish requirements for chemical and physical analyses at hazardous waste management facilities. All references to the 40 CFR citations specified herein are adopted by reference in R 299.11003

This license application attachment addresses requirements for chemical and physical analyses at Gage's Limited Storage Facility (Gage LSF) located in Ferndale, Michigan. The information included in the attachment demonstrates how the facility meets the chemical and physical analyses requirements for hazardous waste management facilities.

Type of applicant: *(Check as appropriate)*

- ☒ Applicant for Operating License for Existing Facility
- ☐ Applicant for Operating License for New, Altered, Enlarged, or Expanded Facility

Type of Facility: *(Check as appropriate)*

- ☐ On-site Facility (generates hazardous waste)
- ☒ Off-site Facility (accepts hazardous waste from other generators)

Type of Units to be Constructed or Operated at the Facility: *(Check as appropriate)*

- ☒ Containers
- ☒ Tank(s)
- ☐ Waste Pile(s)
- ☐ Landfilled Waste
- ☐ Waste Incineration
- ☐ Land Treatment
- ☐ Miscellaneous Unit(s)
- ☐ Boilers and Industrial Furnaces

Gage LSF has prepared a Quality Assurance/Quality Control (QA/QC) plan. A discussion of the QA/QC plan has been provided at the end of the Waste Analysis Plan contained in Attachment A3, Appendix A3-1. The QA/QC Plan follows the written procedures outlined in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," U.S. Environmental Protection Agency (EPA) Publication SW846, Third Edition, Chapter 1 (November 1986), and its updates.

Sections listed in the table of contents below that are not applicable to the Limited Storage Facility (LSF) permit renewal are denoted with a strikethrough and the corresponding section has been deleted from the text. This attachment is organized as follows:

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A2.A WASTE DESCRIPTION

[R 299.9504(1)(c) and 40 CFR §270.14(b)(2)]

Gage operates a reclamation process, used to recover and recycle the paint solvent-related products they blend and supply to customers. Used solvents are shipped to Gage LSF primarily in bulk tank trailers, and also in drums. The reclamation process itself is exempt from licensing requirements. Hazardous waste generated by Gage LSF is managed under the large quantity generator rules and therefore is not regulated under this permit. Gage LSF does not generate waste subject to the limited storage permit/licensing requirements.

A2.A.1 Waste Description (generate on-site wastes)

[R 299.9504(1)(c) and 40 CFR §270.14(b)(2)]

The hazardous waste generated by the facility is managed under the large quantity generator rules. Waste generated onsite is not recycled onsite. However, waste generated onsite may be accumulated in the permitted container storage regulated under the facility's limited storage facility permit.

A2.A.2 Waste Description (receive wastes from off-site generators)

[R 299.9504(1)(c) and 40 CFR §270.14(b)(2)]

Gage LSF operates a hazardous waste Limited Storage Facility (LSF) in order to accommodate temporary storage of off-site wastes and off-site hazardous secondary materials (HSM) prior to recycling. The Gage LSF consists of a three-bay loading/unloading area, an above-ground storage tank farm, and container storage area. The permitted storage units include the 2,750-gallon container storage area and the 22,250-gallon tank storage system. Both the above ground storage tank system and the containerized waste storage are equipped with secondary containment systems. The container storage area includes a segregated area for storage of corrosives. Gage LSF has the capability to receive D002 corrosive waste for transshipment only, as an added service to customers.

In keeping with the requirements as defined in Section 324.11103 (7) of Michigan's Hazardous Waste Management Act, Public Act of 1994, Number 451, as amended, Gage LSF does not receive hazardous wastes from treatment, storage, or disposal facilities.

Hazardous wastes received for recycling at the Gage LSF may have one or more of the following EPA waste codes; F001, F002, F003, F005, D001, D005, D006, D007, D008, D011, D018 and D035. These are the primary waste codes accepted for recycling by the facility. Wastes received under these primary waste codes may exhibit additional 40 CFR 261.24 Toxicity Characteristics which must be listed on profiles, waste manifests and land-disposal-restriction-notifications as additional (secondary) waste codes. These secondary codes may include: D019, D021, D038, D039, and D040 (all are listed constituents of F001, F002, F003, or F005). Gage LSF will only accept these additional (secondary) wastes for storage if they are secondary codes required to properly inform the receiving facility of land disposal restrictions and associated treatment standards for the wastes properly received under the primary EPA waste codes F001, F002, F003, F005, D001, D002, D005, D006, D007, D008, D011, D018 and D035. The wastes are temporarily stored either in Limited Storage Facility's container storage area in 55-gallon drums or in one of the five storage tanks designated for off-site waste. D002 wastes are only stored in containers within a designated corrosive storage area in the Limited Storage Facility's container storage area. The segregated area for corrosive storage is limited to a 12-drum capacity. Table A2.A.2-1 is a complete list of the wastes accepted at Gage LSF, along with a description, characteristics, and basis for hazard designation.

A2.A.2(a) Procedures for Obtaining Chemical and Physical Analyses from Off-Site Generators

Gage LSF's operational model of the closed-loop recycling process is based on the fact that Gage initially

supplies solvents to its customers and remains involved in customers' processes and usage of the solvents. Gage LSF subsequently receives the solvent, mixed with paint solids, as off-site waste. Because Gage LSF blends and supplies the solvents initially, the facility has in-depth knowledge of the chemical and physical properties of the wastes, because the wastes are derived from the products which Gage initially formulated and produced to meet the specific application requirements of the customers (generators).

The solvent products Gage supplies to its customers have precise specifications. Because of this, Gage LSF has accurate data on the composition and physical properties of the used solvents when they are returned as off-site waste. Solvent products blended at Gage undergo quality control (QC) analysis prior to approval for shipment, for density via densitometer, and composition via gas chromatograph.

Prior to receipt of wastes for storage, waste profiles for each waste stream are provided to Gage LSF by the generator. The original product specification information, described above, is used as a basis for creating waste profiles. Generators use the available product knowledge, along with any additional analysis or process knowledge, to complete waste profiles for submittal to Gage LSF. A copy of this profile template is included in Attachment A2 Appendix A2-1. Gage LSF evaluates and approves each profile prior to receipt for storage, to ensure that the waste stream can be stored and managed appropriately. Current profiles are retained at the facility. In addition, all incoming waste streams are subject to an annual recertification.

Upon arrival of the waste load, a representative sample of the waste is analyzed, to ensure that the composition is consistent with the profile. Incoming wastes slated for storage are analyzed for composition utilizing gas chromatography, and also analyzed for density, and pH. The results are compared with information stored in the Material Specifications Reference. This analysis process meets the requirements of 40 CFR Part 264.13 (a) (1&2) and demonstrates compliance with this section and with Michigan Act 451 R299.9504(1)(c) and 40 CFR Part 270.14 (b) (2). A copy of the waste composition calculator template is included in Appendix A2-2.

Gage LSF provides initial and recurrent training to Gage LSF employees to ensure waste samples are collected, transported, analyzed, stored, and disposed properly and safely. A complete description of Gage LSF's employee training program is included in Attachment A10 (Personnel Training) of this document. Gage maintains certification under the ISO 9002 and 14001 standards for quality and environmental management and has a work instruction program under these systems addressing appropriate sampling, handling, and management procedures. Employee training includes the procedures to sample bulk tankers as well as drummed wastes. The supervisor documents the employees' training effectiveness annually. Procedures for sampling and analysis are detailed in the QA/QC Plan, provided with the Waste Analysis Plan in Attachment A3.

The types of hazardous wastes recycled and stored at Gage LSF are described briefly below. The wastes and basis for hazard designation are summarized in Table A2.A2-1.

Listed Hazardous Wastes

- Spent halogenated solvents used in degreasing (F001).
- Spent halogenated solvents (F002).
- Spent non-halogenated solvents (F003).
- Spent non-halogenated solvents (F005).

Characteristic hazardous wastes

- *Hazardous waste exhibiting the characteristic of ignitability (D001, ignitable)*
 - Liquid organic solvents that exhibit the characteristic of ignitability by manifesting a flash point less than 60 C (140 F) as determined by using a Pensky-Martens or Setaflash Closed Cup Tester and their respective ASTM standards.
- *Hazardous waste exhibiting the characteristic of corrosivity (D002 alkaline, or other corrosive subcategory).*

- The alkaline subcategory is defined as having a pH higher than 12.5. The other Corrosive Subcategory is defined as those wastes that exhibit corrosivity to steel as defined in 261.22(a)(2).
- *Hazardous wastes exhibiting Toxicity Characteristic for metals (D005, D006, D007, D008, and D011).*
 - Some of the liquid organic solvent wastes to be managed may be hazardous because they contain Barium (D005), Cadmium (D006), Chromium (D007), Lead, (D008), or Silver (D011).
- *Secondary waste codes exhibiting the toxicity characteristic* include D018 – benzene, D019 – carbon tetrachloride, D021 – chlorobenzene, D035 – methyl ethyl ketone, D038 – pyridine, D039 – tetrachloroethylene, D040 – trichloroethylene.

Table A2.A2-1 lists the details of the waste types Gage LSF is authorized to receive and store under its Gage LSF License:

Table A2.A.2-1 Hazardous Wastes Accepted at the Facility

Hazardous Waste Code	Waste Description	Hazardous Waste Characteristics	Basis for Hazardous Designation	Hazardous Waste Management Unit
D001	Liquid organic solvents	Ignitable	Raw material information/Testing	Tank & container storage
D002	Liquid organic & inorganic solvents	Corrosive	Raw material information/Testing	Container storage
D005	Liquid organic solvents containing toxicity characteristic metals	Toxic - Barium	Raw material information/Testing	Tank & container storage
D006	Liquid organic solvents containing toxicity characteristic metals	Toxic – Cadmium	Raw material information/Testing	Tank & container storage
D007	Liquid organic solvents containing toxicity characteristic metals	Toxic – Chromium	Raw material information/Testing	Tank & container storage
D008	Liquid organic solvents containing toxicity characteristic metals	Toxic – Lead	Raw material information/Testing	Tank & container storage
D011	Liquid organic solvents containing toxicity characteristic metals	Toxic – Silver	Raw material information/Testing	Tank & container storage
D018	Liquid organic solvents containing toxics	Toxic – Benzene	Raw material information/Testing	Tank & container storage
D019	Liquid organic solvents containing toxics	Toxic – Carbon Tetrachloride	Raw material information/Testing	Tank & container storage
D021	Liquid organic solvents containing toxics	Toxic – Chlorobenzene	Raw material information/Testing	Tank & container storage
D035	Liquid organic solvents containing toxics	Toxic – Methyl Ethyl Ketone	Raw material information/Testing	Tank & container storage
D038	Liquid organic solvents containing toxics	Toxic – Pyridine	Raw material information/Testing	Tank & container storage
D039	Liquid organic solvents containing toxics	Toxic - Tetrachloroethylene	Raw material information/Testing	Tank & container storage
D040	Liquid organic solvents containing toxics	Toxic - Trichloroethylene	Raw material information/Testing	Tank & container storage
F001	Spent halogenated solvent (degreasing)	Toxic (solvents)	Process Knowledge/Testing	Tank & container storage
F002	Spent halogenated solvent	Toxic (solvents)	Process Knowledge/Testing	Tank & container storage
F003	Spent non-halogenated solvent	Toxic (solvents)	Product Composition Before Use/Process	Tank & container storage
F005	Spent non-halogenated solvent	Toxic (solvents)	Product Composition Before Use/Process	Tank & container storage

A2.B CONTAINERIZED WASTE

[R 299.9504(1)(c) and 40 CFR §264.172]

A2.B.1 Wastes Compatible with Container

The basis of Gage LSF's closed-loop reclamation program is the recycling of organic solvents that were originally blended at Gage and are intended for reuse. Therefore, Gage is familiar with the physical properties of the subsequent solvent waste, and the importance of container compatibility for the waste. Prior to receipt of waste in containers, the generator must indicate on the profile the type of container in which the waste will be shipped. This information is reviewed prior to waste stream approval and transport to Gage LSF, to ensure that the material of container construction listed is compatible with the lading. Steel drums are the standard container in which solvent products are shipped, and in which organic solvent-type waste is shipped to Gage LSF.

In the event D002 corrosive wastes are profiled for approval, the facility will review the packaging compatibility on an individual basis, based on the corrosive component(s) indicated on the waste profile. In addition, per generator pre-transportation requirements, all hazardous waste / hazardous materials will be shipped in containers compliant with DOT container specifications (i.e. containers must be compatible with the hazardous materials being shipped).

A2.C WASTE IN TANK SYSTEMS

[R 299.9504(1)(c) and 40 CFR §§264.190(a), 264.191(b)(2), 264.192(a)(2)]

A2.C.1 Wastes Compatible with Tanks

Gage LSF primarily receives solvent wastes for storage and recycling via bulk transport in tanker trailers. These wastes may be stored, prior to recycling, in one of the five above ground designated storage tanks with secondary containment. The Gage LSF tanks are constructed of SA 240-304 stainless steel. Stainless steel is unreactive to organic solvents, and water. Specific information on the tank system, is provided in Attachment C2. D002 wastes are only received in DOT specification containers, stored in a segregated corrosives container storage area, and are never bulked into any of the waste storage tanks.



Appendices



Appendix A2-1

Waste Profile Form

APPENDIX A2-1 WASTE PROFILE FORM

Material Profile Number (Gage Assigns): _____



Material Profile Form

625 Wanda Avenue Ferndale, Michigan 48220
248-541-3824
EPA ID No. MID 005 338 801

IMPORTANT: This form is to be completed by a representative of the material generator. Please complete all of the following questions and return to: 1Environment@gageproducts.com or Gage Products Company, 625 Wanda Ferndale, Michigan 48220 Attention: Environmental Manager.

GENERATOR INFORMATION

Generator Name: _____ EPA ID No. _____
Mailing Address: _____
City: _____ State: _____ Zip Code: _____
Site Address: _____
City: _____ State: _____ Zip Code: _____
Contact: _____ Telephone No. _____
Contact e-mail address: _____
Emergency Contact: _____ Emergency Phone: _____
Is Generator a TSDF? ☐ Yes ☐ No

GENERAL MATERIAL INFORMATION

Material Description: _____
Process Generating the Material: _____
Is this a "Hazardous Waste" as defined by Federal or State Regulations? ☐ Yes ☐ No
If YES, enter the applicable Waste Code Identification Number(s) (example D001, D035 EP Toxicity/TCLP):
☐ D001 Other applicable waste codes: _____
Is this a "Hazardous Secondary Material" as defined by Federal or State Regulations? ☐ Yes ☐ No
Note: If so, then it is also a "Liquid Industrial By-Product" as defined by Michigan Regulations.
Recommended Personal Protective Equipment and special handling procedures: _____
Anticipated Volume: _____ ☐ Gallons ☐ Other
Per: ☐ Day ☐ Week ☐ Month ☐ Year ☐ One time only
To be transported in: ☐ Bulk ☐ Drums If drum, type & size: _____
☐ Other: _____
Is representative sample included? ☐ Yes ☐ No

MATERIAL PROPERTIES

Physical State: ☐ Liquid Other: _____
Odor: ☐ None ☐ Mild ☐ Strong Describe: _____
Flashpoint (Degrees Fahrenheit): ☐ < 73° ☐ 73-100° ☐ 101-140° ☐ 141-200° ☐ >200° ☐ NA
Layers: ☐ Single Phased ☐ Bi-Layered ☐ Multi-Layered
Density: _____ ☐ Lb./Gal ☐ Lb./yd. 3 ☐ g/cc ☐ Other: _____
Color: _____ Percent Solids: _____ pH: _____
Note if the material exhibits any of the following health hazards:
☐ Carcinogenic ☐ Infectious/Biological ☐ Radioactive ☐ Poison-Inhalation Hazard

REACTIVITY

Note if the material exhibits any of the following reactive properties:

☐ Water Reactive ☐ Autopolymerizable ☐ Acid Reactive ☐ Pyrophoric ☐ Strong Oxidizer ☐ Autoignitable

☐ Thermally Sensitive ☐ Alkaline Reactive ☐ Shock Sensitive ☐ Explosive ☐ None of These

WASTE CLASSIFICATION	
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RCRA Waste Description per 40 CFR 261:

RCRA EPA Waste Code(s) per 40 CFR 261:

Waste is subject to Land Disposal Restrictions per 40 CFR 268: ☐ Yes ☐ No

Waste is Subject to Subpart CC Regulations? ☐ Yes ☐ No

COMPLETE MATERIAL COMPOSITION

Concentration ranges are suggested, but must total at least 100 %. Units must be identified and are to be in parts per million and/or percentages. Attach additional pages if necessary.

[illegible]

TRANSPORTATION INFORMATION

Gage will accept delivery of all materials in a time and manner that is scheduled by Gage Products.

If the material is a U.S. DOT hazardous material, complete the following:

Proper U.S. DOT Shipping Name:

N.O.S. Description, if applicable:

Hazard Class:	UN or NA Number:
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Required Labels: _____ Required Placards: _____

CERCLA Reportable Quantity/Component: _____

Material is to be shipped only by an appropriately permitted carrier:

Transporter: ☐ Quality Carriers Inc.- EPA ID Nos. ILD 024 921 074, FLR 000 057 414, Phone 813-569-7271

☐ S&C Transport - EPA ID No. MIK126399684, Phone 734-422-0200

☐ Harold Marcus LTD - EPA ID No. MIT 270 012 321, Phone 519-695-3734

☐ **Haz Mat Environmental Group Inc. - EPA ID No. NYD 980 769 947, Phone 586-468-9369**

EPA ID No.

Address: _____ Contact: _____

Phone: _____

Permit No. _____

Does the transporter have appropriate permits to haul the material? ☐ Yes ☐ No

Does the transporter have appropriate permits to haul the material? ☐ Yes ☐ No

SUPPLEMENTAL INFORMATION

☐ SDS ☐ Analytical Data ☐ Memo/Letter ☐ Material Composition ☐ Other ☐ None☐ Hazardous Secondary Material Notification

LAND DISPOSAL RESTRICTIONS, RESTRICTED WASTE NOTIFICATION - FOR HAZARDOUS WASTES

Indicate the EPA waste code and corresponding treatment standards in the appropriate sub-section below.

☐ Waste Carries D001 Waste Code:

Treatability Group (Check one):

- ☐ Non-wastewater (>1% TOC, >1% TSS)
☐ Wastewater (<1% TOC, <1% TSS)

Waste Sub-category (Check one):

- ☐ High TOC (>10% Total Organic Carbon)
☐ Low TOC (<10% Total Organic Carbon)

(If this stream is D001, Non-wastewater, High TOC as indicated above):

- ☐ The Treatment Technology specified by EPA 40 CFR 268.40, for this waste stream is RORGS; CMBST; or POLYM. This treatment standard is defined in 40 CFR 268.42.

☐ Waste Carries F001-F005 Waste Code(s):

Treatment standards are defined for individual components - 40 CFR 268.40

☐ Waste Carries Other Waste Code(s):

Code(s): _____

Indicate subcategory, treatability group, and 40 CFR citation where treatment technology is specified:

☐ Material is a Hazardous Secondary Material for recycle. LDR information does not apply.

CERTIFICATION

Is this a state or federal Hazardous Secondary Material (HSM)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Has the HSM generator submitted notification of its HSM generator status to appropriate agency?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Copy of HSM notification provided to Gage?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Is this a Part 111 of Act 451 hazardous waste (R299.9201 to R299.9229)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Does the material represented by this Profile form contain any of the following pesticides or herbicides: Endrin, Lindane, Methoxychlor, Toxaphene, 2,4,0D, 2,4,5-TP (silvex), chlordane, Heptachlor (and its epoxide)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Is the material from a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (40 CFR Part 300, Appendix B) or <i>state</i> mandated cleanup?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Does the material represented by this Material Profile Form contain concentrations of radioactive elements regulated by the Nuclear Regulatory Commission?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Does the material represented by this Material Profile Form contain concentrations of PCBs regulated under 40 CFR Part 147, "PCB Compounds", of Act 451 or 40 CFR Part 761?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Do the Material Profile Form and all attachments contain true and accurate descriptions of the material, and has all the relevant information within the possession of the generator regarding known or suspected hazards pertaining to the material been disclosed to the facility?	<input type="checkbox"/> Yes	<input type="checkbox"/> No

GENERATOR CERTIFICATION STATEMENT: I hereby certify that as an authorized representative of the generator named herein, to the best of my knowledge all information submitted in this and attached document is true and accurate and that all wastes/materials have been properly containerized and labeled. Samples analyzed to obtain the information reported on this form were representative of the waste/material and all known and suspected hazardous components have been included in the documentation.

SIGNATURE

TITLE

PRINTED NAME

DATE

For Gage Products Internal Use Only:

_____ WR Designation (specified by Remanufacturing) OR:

_____ BP---- For Trans-ship

_____ Designating Reman Representative

_____ Date



Appendix A2-2

Waste Analysis Composition Calculator Form

Waste Code		pH	
Manifest Number		Solids, wt%	0.00
Date	8/2/2024	Water, wt%	0.00
Generator	#N/A		

[illegible]

Sum	0.0
Total	0.0
HAP, wt%	0.0
VOC, wt%	100.0
Wet Reclaim	