Stabilization Plan

2-33 50th Avenue
Long Island City, NY

June 14, 2022

Prepared for:

50th & 5th LIC, LLC

Prepared by:

Roux Environmental Engineering and Geology, D.P.C.
209 Shafter Street
Islandia, New York 11749

2887.0004Y136/CV

Table of Contents

Figures

Appendices

1. Stabilization Plan

Roux Environmental Engineering and Geology, D.P.C. has prepared this Stabilization Plan for the Lead Impacted Soil Removal on behalf of 50th & 5th LIC, LLC for the Site located at 2-33 50th Avenue in Long Island City, NY, BCP # C241251. This document has been prepared based on findings of the pre-construction waste characterization sampling results which identified soils with characteristically hazardous lead concentrations and will supplement the RAWP dated March 2022 prepared by Roux. Lead impacted soils will be stabilized in-situ to remove the lead toxicity characteristics prior to offsite disposal. A Waste Characterization Grid Map and Hazardous Lead in Soil Distribution Map has been included as Attachments #1 and #2 for reference. The specialty contractor performing the lead stabilization will be Sevenson Environmental Services, Inc.

1.1 Qualifications and Experience of Sevenson Project Manager and Superintendent

Sevenson employs a total of 625 personnel, including professional, technical, field, and administrative staff. For each project, a project team is assembled from the staff pool. The team is comprised of individuals who have the necessary experience to execute the work safely and efficiently and have experience working together, as a team, on past projects.

Sevenson's Project Manager for the Soil Remediation Project will be Mr. Chris Rice. He has over 46 years' experience in the chemical, environmental, and remediation industries. He has 32 years of experience using the MAECTITE® Process on over 100 sites throughout the United States, Canada and the North Pacific.

Sevenson's Superintendent for the Soil Remediation Project will be Mr. William Schilling. He has over 20 years' experience using the MAECTITE® stabilization process.

1.2 Lead Stabilization of Soil

Stabilization of Lead in the historic urban fill within the excavation areas will include the following steps:

1.2.1 Determination Reagent Quantity

Quantity of Reagent

The amount of reagent required to achieve lead stabilization is dependent on several location specific parameters and will be observed and calculated onsite by a Sevenson field technician with the assistance of Roux personnel. The parameters relating to this calculation are:

- Soil Volume;
- Soil Density for each seven (7) foot interval being treated;
- Reagent Density, and
- Reagent Dosage rate.

The above data will be collected for the site and used to calculate the amount of Reagent required for each Waste characterization grid. Adjustments to the formula will be made onsite based on encountered soil characteristics and Sevensons professional judgment. Sevenson will be responsible for calculating the Reagent volume for each individual WC grid. The reagent will be added to the impacted soil using a percent mass dosing rate.

A description of the process to calculate the quantity of liquid reagent as well as an example site specific calculation of reagent volume is included below and as Equation 1. Equation 1 is calculated for WC grid #23 using site specific soil density and Sevenson provided dosing rate.

- Calculate the Volume of impacted soil to be stabilized, and convert to Mass. (Each application of reagent will be applied to a maximum vertical interval of seven feet).
- Calculate Mass of liquid reagent by multiplying Mass of the impacted soil by the Reagent dosing rate. A dosing rate of .0075[lbs-reagent/lbs soil] has been provided by Sevenson for this site.
- Calculate the Volume of liquid reagent to be applied to the impacted soil. Multiply the Mass of the Liquid Reagent by the Reagent Density. Reagent Density can be determined with the SDS associated with the *MAECTITE* reagent.

<u>Equation 1</u>: Calculation of the Quantity of Reagent to Stabilize Lead (WC Grid #23 - 50' x 50' Grid location, 2'-4' depth interval)

- Calculated Soil Volume to be treated:

(Length) x (Width) x (Depth) = Volume

50' x 50'by 2'= ***5,000ft^3.***

- Calculate the Soil Density:

$$\frac{(Soil\ Volume)}{(Avg\ Mass\ of\ Soil)}$$ ***=111 pcf;***

- Calculate Total Soil Weight

(Soil Volume) x (Soil Density) = (Weight of Soils)

(5,000ft^3 x 111pcf) = ***555,000 lbs of soil;***

- Calculate Weight of Reagent based on Dosing rate

(Weight of Soil) x (Dosing Rate) = (Amount Reagent for one grid)

(555,000lbs x 0.0075) = ***4,163 lbs.*** **of Reagent (MAECTITE)**

- Calculate Density of Reagent (Specific Gravity taken from SDS sheet)

MAECTITE density = (Density of Water) x (Reagent Specific Gravity)

(8.34 lbs./gallon x 1.65) = ***13.8 lbs. /gallon***

- Calculate Volume of Reagent required for Stabilization:

(Weight of Reagent) x (Reagent Density) = (Volume of Reagent)

$$\frac{4163\ lbs}{13.8\ {}^{lbs}/_{gal}}$$ ***= 301.6 gallons required***

<u>310 Gallons of MAECTITE Required for Treatment of WC Grid #23</u>

1.2.2 Preparation and Application of Reagent to Soil

Mobilization/ Equipment

The equipment expected to be used onsite for stabilization of soils will typically include:

- Komatsu PC220 excavator, or equivalent (Mix and excavate soils);
- Air compressor and double diaphragm pump (Application of Reagent);
- Portable Generator (power onsite equipment);
- 5,000-gallon tank (for bulk onsite storage); and
- 500-gallon Polyethylene (poly) tank (used for application to soils).

Application of Reagent to Soils

Following mobilization and delivery of the reagent to the site, Sevenson will evaluate each WC grid to aid in calculating reagent volume, as well as guide preparation and application of the reagent. Each WC grid location will be treated individually and through the following steps:

- MAECTITE® Reagent (for soil stabilization) will be delivered to the site and transferred to the onsite bulk storage tank with a 5,000-gallon capacity. This tank will be refilled as needed to support the stabilization efforts.
- Sevenson personnel will assess soil characteristics onsite and perform dosing calculations to determine the total volume of reagent required for the grid location.
- The calculated volume of liquid reagent will be transferred to the graduated 500-gallon poly tank and placed at a strategic location within the soil stabilization area.
- The reagent will be manually dispersed over the grid via two-inch-diameter chemical hose and a double diaphragm pump. (No nozzle will be used as the reagent tends to create aerosol particles that may be a respiratory nuisance/concern).
    - Based on an existing 10% moisture content in the soil (the requirement of stabilization) the use of additional water will not be required for this application.
- In the event dispersion of the reagent is not satisfactory (determination will be made by a qualified Sevenson technician) A controlled application of water may be required to enhance the dispersion into the soil and will be applied via the same mechanism as the liquid reagent. The quantity of water will be determined by Sevenson personnel onsite and based on experience, and specific site condition. (Water may be added before, after, or simultaneously with the liquid reagent). Water may also be used for dust control.

Reagent Quantity

Based on dosing rate and data provided by Sevenson, it is estimated that the lead stabilization efforts of the Site will require an estimated total of **3,600-gallons of MAECTITE® Reagent, treating an estimated volume of 5,250 cubic yards of lead contaminated soil.** Volume requirements may differ in field as Sevenson technicians will adjust the treatment process in real time based on onsite observations.

1.2.3 Mixing/Stabilization/Sampling

After the reagent and water have been added to the impacted soils, mechanical mixing will be performed using an excavator fitted with a tooth-edged bucket. Mixing may be described as a back-and-forth folding

motion, which will create a homogeneous mix to the specified depth of seven feet. After application of the reagent, the soil/reagent characteristics and the mixing procedure are almost identical to wet cement.

The MAECTITE® process has a theoretical cure time of 3 - 5 hours. Upon reagent application, the treated soils will be allowed to set 1 hour, at a minimum, prior to verification of stabilization sampling. Roux will collect one (1) composite sample per grid and analyze the treated soils for TCLP Metals to provide confirmation of lead stabilization to quantities below 4mg/l. If additional contamination is encountered following confirmation sampling, additional applications of the reagent will be made until confirmation of lead stabilization is achieved.

In grids that call for stabilization at depths greater than seven feet, the treatment will be phased in vertical intervals of seven (7) feet:

- Treat, cure and analyze the initial seven-foot interval as described in sections 1.2.1- 1.2.3 of this document for confirmation of lead stabilization;
- Stage/dispose of stabilized soils; and
- Repeat steps as described in sections 1.2.1 through 1.2.3 of this document for each additional seven-foot depth interval until treatment depth is achieved.

It is expected that 1-2 WC Grid locations will be treated per day depending on the required treatment depths. Estimated time to complete full treatment of the site is expected to be 1 -2 weeks.

1.3 Health and Safety/ Quality Control

1.3.1 Health and Safety

This work plan incorporates the use of MAECTITE® Reagent which is a propriety blend that is used to stabilize lead impacted soils. The Safety Data Sheet associated with this material is included as Appendix 1 for reference.

MAECTITE® Reagent is corrosive material which when in its pure form presents Eye, Skin, Inhalation and Ingestion hazards if not used as described in this Work Plan and within the SDS. It should be noted that once the reagent has been applied to the soil, all hazards associated with the pure form are dissipated. Protective steps to ensure safe handling of Materials are described below and included with the SDS as Appendix 1:

- Eye, Skin and Inhalation Hazards:
    - CLASS D PPE will be required to protect from splashes or spray of the reagent during application.
    - Due to the potential for this material to produce aerosols, no hose nozzle will be accepted for use during application. As work will take place outdoors, no additional ventilation measures will be required.
- Ingestion Hazards:
    - All food should be kept in a separate area away from the storage/use location. Eating, drinking, and smoking should be prohibited in areas where there is a potential for significant exposure to this material. Before eating, hands and face should be thoroughly washed.

1.3.2 QA/QC

One proprietary reagent blend will be used. SDS Sheets are attached as Appendix 1.

MAECTITE® Reagent will be used to stabilize Lead impacted soils.

MAECTITE® Reagent will be used at a 0.5% to 1% (w/w) dosage rate. It is expected that a dosing rate of .75%(w/w) will be utilized at this site. A working strength solution of MAECTITE® Reagent may be prepared, with the addition of water at a ratio to be determined, based on actual field conditions.

Certificates of Analysis on delivered products will be reviewed for conformance with product specifications.

1.4 Reporting

All daily and CAMP Reports, as detailed below, will be performed and prepared by ROUX and included in the Final Engineer Report (FER) in accordance with the approved RAWP.

1.4.1 Daily Reports

Daily reports will be submitted to NYSDEC and NYSDOH Project Managers by noon of each day following the reporting period and will include:

- An update of progress made during the reporting day;
- Locations of work and quantities of material imported and exported from the Site;
- References to alpha-numeric map for Site activities;
- A summary of any and all complaints with relevant details (names, phone numbers);
- A summary of CAMP results, including excursions;
- An explanation of notable Site conditions;
- A look ahead portion which describes immediate future work; and
- Photos of site activity.

Daily reports are not intended to be the mode of communication for notification to the NYSDEC of emergencies (accident, spill), requests for changes to the RAWP or other sensitive or time critical information. However, such conditions must also be included in the daily reports. Emergency conditions and changes to the RAWP will be addressed directly to NYSDEC Project Manager via personal communication.

Daily Reports will include a description of daily activities keyed to an alpha-numeric map for the Site that identifies work areas. These reports will include a summary of the stabilization efforts, CAMP monitoring and corrective actions, as well as all complaints received from the public.

The NYSDEC assigned project number will appear on all reports.

1.4.2 Community Air Monitoring Program (CAMP) Reports

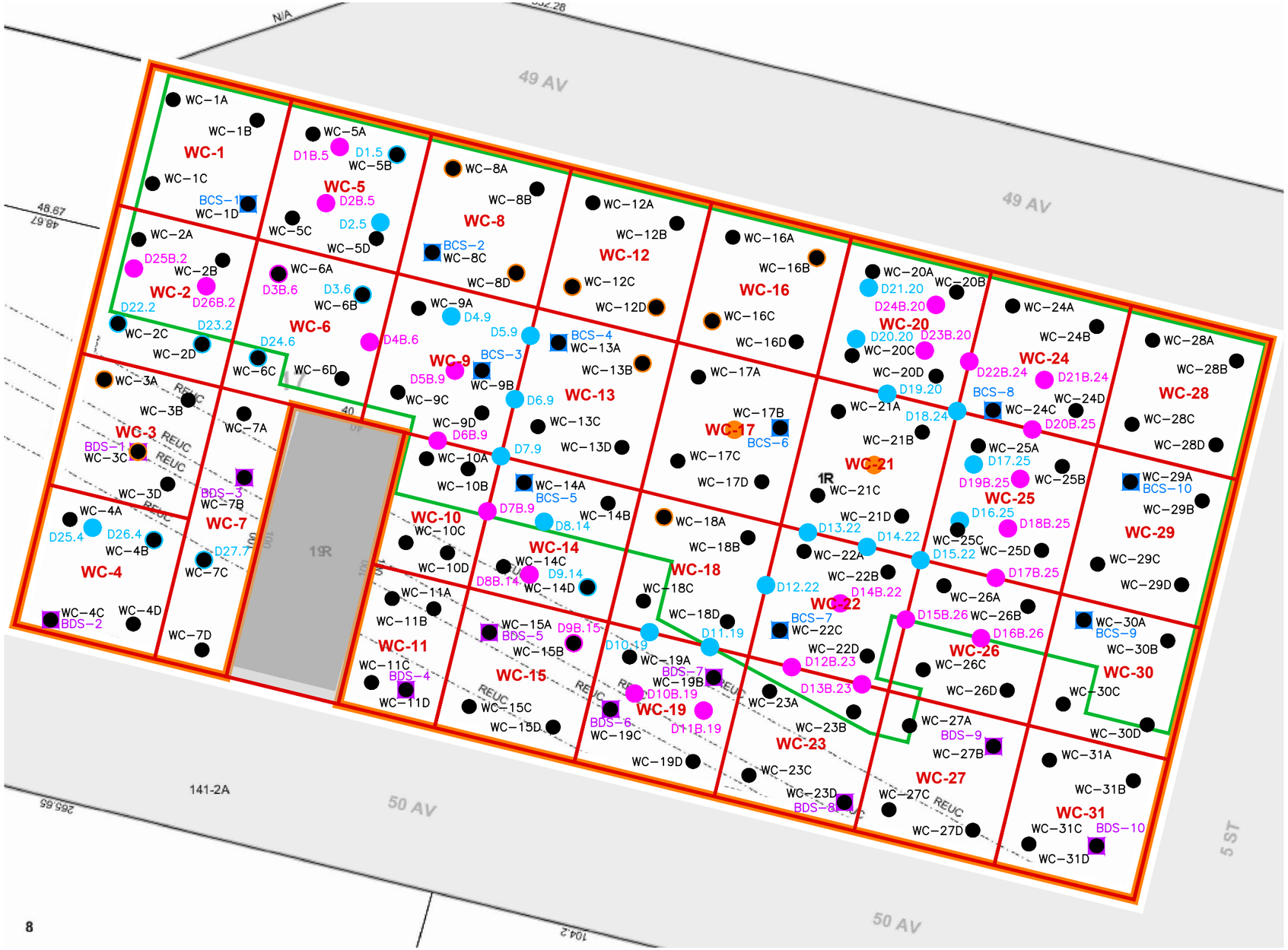
All soil disruptive work capable of producing air-borne dust will be completed in accordance with the DEC approved CAMP included in the RAWP date March 2022. The objective of CAMP is to ensure any soil disturbing activities related to this work does not negatively affect the air quality of the community surrounding the site. Roux will be responsible for performing and reporting all CAMP activities.

To achieve an accurate representation of the onsite conditions, one (1) CAMP station will be set up in each, an upwind and a downwind location of the work for the duration of the activities. Each CAMP station will include an air-borne dust monitor and a Photo-ionization detector (PID) programed to sample at a 15 minute interval.

All finding and data will be included in a Daily CAMP report which will be supplied to DEC with the FER in accordance with the approved RAWP.

FIGURES

1. Waste Characterization Grid Map
2. Distribution of Hazardous and >1200 Ppm Lead in Soil



LEGEND

- BCP SITE BOUNDARY
- LOT NOT PART OF THE BCP SITE
- BCS–1 — BOTTOM CONFIRMATION SAMPLE LOCATION AND DESIGNATION
- BDS–1 — BOTTOM DOCUMENTATION SAMPLE LOCATION AND DESIGNATION
- WC–1A — WASTE CHARACTERIZATION BORING APPROXIMATE LOCATION AND DESIGNATION
- D1.5 — PROPOSED HORIZONTAL DELINEATION SAMPLE LOCATION (EE)
- D1B.5 — PROPOSED HORIZONTAL DELINEATION SAMPLE LOCATION ON HOLD (EE)
- PROPOSED BOTTOM DELINEATION SAMPLE LOCATION (EE)
- PROPOSED CELLAR
- EXTENT OF WASTE CHARACTERIZATION GRID

N

40’ 0 40’

Title:

WASTE CHARACTERIZATION GRID MAP

2-33 50TH AVENUE, LONG ISLAND CITY, NEW YORK

Prepared for:

50th & 5th LIC LLC

ROUX

Compiled by: B.V.	Date: 15MAR22	FIGURE
Prepared by: B.H.C.	Scale: NOT TO SCALE	1
Project Mgr: W.S.	Project: 2887.0004Y000	
File: 2887.0004Y132.01.DWG		

V:\CAD\PROJECTS\2887Y\0004Y\132\2887.0004Y132.01.DWG

49TH AVENUE

TRACK 1

WC-1 WC-5 WC-8 WC-12 WC-16 WC-20 WC-24 WC-28

WC-2 WC-6 WC-9 WC-13 WC-17 WC-21 WC-25 WC-29

WC-3 WC-7 WC-10 WC-14 WC-18 WC-22 WC-26 WC-30

WC-4 WC-11 WC-15 WC-19 WC-23 WC-27 WC-31

TRACK 4

TRACK 1

TRACK 4

5TH AVENUE

50TH AVENUE

N

LEGEND

- SAMPLE LOCATION WITH EXCAVATION DEPTH (FT BLS)
- WASTE CHARACTERIZATION GRID
- BCP SITE BOUNDARY

EXCAVATION DEPTH (FT BLS)

- 1 - 2
- 2 - 3
- 3 - 4
- 4 - 5
- 5 - 6
- 6 - 7
- 7 - 8
- 8 - 9
- 9 - 10
- 10 - 11
- 11 - 12
- >12

40 0 40'

Title:

DISTRIBUTION OF HAZARDOUS AND >1200 PPM LEAD IN SOIL

2-33 50TH AVENUE, LONG ISLAND CITY, NEW YORK

Prepared for:

50TH & 5TH LIC LLC

ROUX

Compiled by: R.H.	Date: 05/09/22	FIGURE
Prepared by: M.S.R.	Scale: AS SHOWN	2
Project Mgr: R.H.	Project: 2887.0004Y000	
File: 2887.0004Y132.2.mxd		

V:\GIS\PROJECTS\2887Y\0004Y\132\2887.0004Y132.2.MXD

APPENDIX 1

SDS Maectite® Reagent

This product safety information sheet is principally directed to managerial, safety, hygiene, and medical personnel. The description of physical, chemical, and toxicological properties and handling advice is based upon experimental results and past experience. It is intended as a starting point for the development of health and safety procedures.

I. PRODUCT AND COMPANY IDENTIFICATION

Trade Name:	MAECTITE® Reagent
Use:	Industrial
Company:	Sevenson Environmental Services, Inc. 2749 Lockport Road Niagara Falls, NY 14305 (716) 284-0431
Emergencies:	(800) 424-9300 (CHEMTREC)

II. HAZARD IDENTIFICATION

II.1 Classification

OSHA HCS 2012

Corrosive to Metals 1 - H290
Skin Corrosion 1B - H314

II.2 Label elements

OSHA HCS 2012

DANGER

Hazard statements

May be corrosive to metals - H290
Causes severe skin burns and eye damage. - H314

Precautionary statements

Prevention

Keep only in original container. - P234
Do not breathe mist/vapors/spray. - P260
Wash thoroughly after handling. - P264
Wear protective gloves/protective clothing/eye protection/face protection. - P280

Response

Absorb spillage to prevent material damage. - P390
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. - P303+P361+P353
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. - P301+P330+P331
Wash contaminated clothing before reuse. - P363
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. - P304+P340
Immediately call a POISON CENTER or doctor/physician. - P310
Specific treatment, see supplemental first aid information. - P321
IF IN EYES: Rinse cautiously with water for several minutes.
Remove contact lenses, if present and easy to do.
Continue rinsing. - P305+P351+P338

Storage/Disposal

Store in corrosive resistant/ container with a resistant inner liner. - P406
Store locked up. - P405
Dispose of content and/or container in accordance with local, regional, national regulations. - P501

III. COMPOSITION / INFORMATION ON INGREDIENTS

Composition: Trade Secret held by Sevenson; exemption referenced to 29 CFR 1910.1200.
OSHA PEL: 1 mg/m3
TLV-TWA: 1 mg/m3
STEL: 3 mg/m3
Concentration: Trade Secret held by Sevenson; exemption referenced to 29 CFR 1910.1200.

IV. FIRST AID MEASURES

Ingestion: Do NOT induce vomiting. Immediately give large quantities of water (or milk if available). If vomiting does occur, give fluids again. Do not induce vomiting or give anything by mouth to an unconscious person. Get medical attention immediately.

Skin Contact: Immediately flush all affected areas with large amounts of water for AT LEAST 15 MINUTES. Remove all contaminated clothing and shoes while under a safety shower wiping away excess material from the skin. Do not attempt to neutralize with chemical agents. Get medical advice immediately if irritation develops or persists.

Eye Contact: Immediately flush the eyes with large quantities of running water for a minimum of 15 minutes. Hold the eyelids apart during the flushing to ensure rinsing of the entire surface of the eye and lids with water. Do not attempt to neutralize with chemical agents. Obtain medical attention as soon as possible. Oils or ointments should not be used. Continue the flushing for an additional 15 minutes if the physician is not immediately available.

Inhalation: Remove to fresh uncontaminated atmosphere. If breathing has ceased, clear the victim's airway and start mouth-to-mouth artificial respiration, which may be supplemented by the use of a bag-mask respirator or a manually triggered oxygen supply capable of delivering one liter/second or more. If the victim is breathing, oxygen may be delivered from a demand-type or continuous-flow inhalator, preferably with a physician's advice

V. FIRE FIGHTING MEASURES

MAECTITE Reagent is not flammable. In a fire, prevent human exposure to fire, smoke, fumes, or products of combustion. Evacuate nonessential personnel from the fire area.

When there is a potential for exposure to fire, smoke, fumes, products of combustion, etc., firefighters should wear full-face, self-contained breathing apparatus and impervious clothing such as gloves, hoods, suits, and rubber boots.

Use standard firefighting techniques to extinguish fires involving materials surrounding this product - use the most appropriate agent to extinguish the surrounding material. Water and/or water-based foam can be used; the amount should be large enough to avoid heat buildup. Use water to keep fire-exposed containers cool and to prevent rupture.

VI. ACCIDENTAL RELEASE MEASURES

This material is stable at atmospheric pressures and normal use conditions. It will freeze at low temperatures (see Section IX).

Make sure all personnel involved in the spill cleanup follow good industrial hygiene practices (refer to Section IV).

Small spills can be handled routinely. If mists or vapors are generated, use adequate ventilation and wear a respirator to prevent inhalation. Wear suitable protective clothing and eye protection to prevent skin and eye contact. Use the following procedures:

Neutralize the spill area with soda ash and then flush the area with copious amounts of water. Exercise caution during neutralization as considerable heat may be generated.

Large spills should be handled according to a predetermined plan. Prevent large quantities from contacting waterways or vegetation. For assistance in developing a plan, contact Sevenson Environmental Services, Inc., 8270 Whitcomb St, Merrillville, Indiana 46410
(219) 756-4686.

VII. HANDLING AND STORAGE

Use appropriate personal protective equipment as provided in section VIII. Avoid contact with skin and eyes. Avoid inhalation and ingestion.
.
Containers should be stored in a cool, dry, well-ventilated area. Exercise due caution to prevent damage to or leakage from the container.

VIII. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employee Exposure Limits: The permissible exposure limit (PEL) for this product is 1 mg/m3. The threshold limit value (TLV) time-weighted average for this product is 1 mg/m3; the short term exposure limit (STEL) is 3 mg/m3.

PEL's and TLV's refer to airborne concentrations measured in the breathing zone by appropriate sampling techniques.

Engineering Controls: Good ventilation is usually sufficient to control airborne levels.

All food should be kept in a separate area away from the storage/use location. Eating, drinking, and smoking should be prohibited in areas where there is a potential for significant exposure to this material. Before eating, hands and face should be thoroughly washed.

Skin Protection: Skin contact with liquid or its aerosol must be prevented through the use of chemical resistant clothing, gloves, and footwear, where contact is likely.

Eye Protection: Eye contact with liquid or its aerosol must be prevented through the use of chemical goggles or a face shield when eye and face contact is possible due to splashing or spraying of material.

Respiratory Protection: If use conditions generate airborne liquid or aerosol, the material should be handled in an open (e.g., outdoor) or well-ventilated area. Where adequate ventilation is not available, NIOSH-approved respirators should be employed to reduce exposure. Respirator selection must address the potential for exposure under the use conditions.

IX. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: (75ºF/23.9ºC at 14.7 psia): Amber viscous liquid mixture
Specific Gravity (at 75ºF/23.9ºC) (water = 1.0): 1.68
Density (at 68ºF/20ºC): 13.8 lbs/gal
Boiling Point (STP): 275ºF/135ºC
Melting Point: -38ºF
Vapor Pressure (at 77ºF): 2-6 mm Hg
Water Miscibility: Miscible in all proportions
Odor: Acrid odor
pH: 2.1 (1% aqueous solution)
Viscosity 90-125 cps @ 75ºF
Flash Point: None

X. STABILITY AND REACTIVITY

This product is stable under normal conditions.
Hazardous polymerization will not occur.
Stainless steel (316 ELC) Teflon or polypropylene is the preferred material of construction for process equipment, storage, and shipping containers. This product is corrosive to common metals such as mild steel, copper, brass, and bronze and may generate flammable hydrogen gas as a result of this reaction. Type 304 stainless steel is not recommended.

XI. TOXICOLOGY

DANGER: Corrosive - causes burns. Do not get in eyes, or skin, or on clothing. Avoid breathing mists.

Ingestion: Severe internal irritation and damage can result if ingested. (LD50 RAT = 1,530 mg/kg).

Skin Contact: (Rabbit) Not irritating to skin at 17% solution but severe irritation at higher concentrations.

Eye Contact: Corrosive to rabbit eyes. Contact of the liquid with the eyes may result in irritation or severe burns depending upon the extent of exposure.

Inhalation: Inhalation of the fumes may result in irritation of the nose, throat, and respiratory tract.

Carcinogenicity: no data available

XII. NOT MANDATORY

XIII. DISPOSAL CONSIDERATIONS

If uncontaminated, recover and reuse product. For assistance in disposing of unused material contact Sevenson Environmental Services, Inc., 8270 Whitcomb St., Merrillville, Indiana 46410, (219)756-4686. Thoroughly rinse and offer empty container for recycling, reconditioning, or disposal in an approved landfill or dispose of in such a manner that will not adversely affect the environment

XIV. NOT MANDATORY

XV. NOT MANDATORY

XVI. OTHER INFORMATION

NFPA Hazard Ratings Health: 3 Fire: 0 Reactivity: 0
0=insignificant 1=slight 2=moderate 3=high 4=extreme

Prepared July 1, 2015
Revised November 1, 2017