Environmental GEO-Technologies, LLC

August 29, 2018

Mr. Allan Batka
United States Environmental Protection Agency
Region 5 (WU-16J)
77 West Jackson Blvd.
Chicago, Illinois 60604

Re: EGT Monthly Report (in conformance with MI-163-1W-C010 & MI-163-1W-C011)

Dear Mr. Batka:

Environmental Geo-Technologies, LLC ("EGT") hereby timely submits its fifty-seventh Monthly Report ("MR") in conformance with the requirements of its two EPA UIC permits (#s MI-163-1W-C010 & MI-163-1W-C011).

EGT is providing all of the attached information in the same sequence as required by both subject permits, i.e. Part II.D.1 (a-i), Part III, Attachment A, and Part III, Attachment E.G.2 & E.I.

EGT did not accept any F039 waste in July, 2018 so no Page A-3 of 3 laboratory analyses are necessary to be submitted as part of this MR.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

We trust that you find this interim report satisfactory, however, if you have any questions or comments, please feel free to contact us.

Sincerely,

Richard J. Powals, P.E.
Vice-President

cc: J. Frost (EGT)

att.

rjp073118/EGTEPAMonthlyReport-July, 2018

P 734-946-1000 F 734-946-1002 - 28470 Citrin Drive. Romulus, Michigan 48174
www.envgeotech.com

AVERAGE INJECTION RATE

Calculation of Average Injection Rate

CURRENT REPORTING YEAR 2018

CURRENT REPORTING MONTH July

Date (month, year) of the first injection into either well at the Citrin Road Facility Nov 2013

CURRENT MONTH (all volumes in gallons)

	Injected Waste	Injected Non-Waste	Total injected
MI-163-1W-C010, Well #1-12			
Current Month	31,335	0	31,335
Since facility first injected			14,218,180
MI-163-1W-C011, Well #2-12			
Current Month			0
Since facility first injected			4,648,736
		Lifetime Combined	18,866,916

Conversion factors
365.25 days per year ÷ 12 months per year = 30.4375 days per month
30.4375 days per month × 1440 minutes per day = 43,830 minutes per month

Calculations
Whole number of months of injection 55

_____ lifetime number of months of injection × 43,830 minutes/month
= 2,410,650 minutes of injection

Lifetime combined injected volume 18,866,916 ÷ 2,410,650 minutes of injection
= 7.8 gpm average injection rate

WELL 1 DATA

Well 01 Monthly Data

Date	Min Injection Pressure (PSIG)	Max Injection Pressure (PSIG)	Min Sight Glass Level (in)	Max Sight Glass Level (in)	Min Annulus Pressure (PSIG)	Max Annulus Pressure (PSIG)	Min Injectate pH	Max Injectate pH	Min Flow Rate (GPM)	Max Flow Rate (GPM)	Min Differentail Pressure (PSIG)	Max Differential Pressure (PSIG)
7/1/2018	45.3	45.6	23.4	23.7	738.8	739.9	3.1	3.1	0.0	0.0	693.3	694.5
7/2/2018	45.2	45.5	23.5	23.7	738.3	739.2	3.1	3.1	0.0	0.0	692.9	693.8
7/3/2018	45.2	45.4	23.5	23.7	737.7	738.8	3.1	3.1	0.0	0.0	692.4	693.6
7/4/2018	45.1	45.4	23.4	23.7	737.2	738.3	3.1	3.1	0.0	0.0	692.0	693.1
7/5/2018	45.1	45.3	23.5	23.7	736.8	737.8	3.1	3.1	0.0	0.0	691.5	692.6
7/6/2018	45.0	887.7	23.5	23.7	737.1	1204.9	4.3	4.3	5.0	60.5	309.6	716.1
7/7/2018	72.3	73.3	23.4	23.7	745.6	752.1	4.3	4.3	0.0	0.0	673.3	678.9
7/8/2018	71.8	72.4	23.4	23.6	743.7	745.7	4.3	4.3	0.0	0.0	671.6	673.4
7/9/2018	71.5	71.9	23.4	23.6	742.6	744.0	4.3	4.3	0.0	0.0	670.8	672.2
7/10/2018	71.3	71.7	23.4	23.6	742.1	743.2	4.3	4.3	0.0	0.0	670.5	671.6
7/11/2018	71.1	71.5	23.4	23.6	741.5	742.6	4.3	4.3	0.0	0.0	670.1	671.3
7/12/2018	71.0	71.3	23.4	23.6	740.9	742.0	4.3	4.3	0.0	0.0	669.7	670.8
7/13/2018	71.0	71.3	23.4	23.6	740.3	741.4	4.3	4.3	0.0	0.0	669.2	670.3
7/14/2018	71.0	71.3	23.4	23.6	740.1	741.0	4.3	4.3	0.0	0.0	669.0	669.9
7/15/2018	71.0	71.2	23.4	23.6	739.5	740.4	4.3	4.3	0.0	0.0	668.4	669.4
7/16/2018	50.0	1000.0	-12.5	53.2	0.0	1000.0	7.4	7.4	0.4	259.7	-260.8	929.0
7/17/2018	-2.1	923.9	22.5	25.4	199.6	1077.0	7.4	7.4	15.3	32.7	-90.4	968.8
7/18/2018	-1.8	715.7	23.2	23.5	770.0	1049.2	7.4	7.4	0.9	0.0	89.9	807.7
7/19/2018	-0.9	0.5	23.3	23.5	767.8	770.3	7.4	7.4	0.0	0.0	767.6	771.1
7/20/2018	-0.3	0.9	23.3	23.6	766.8	767.9	7.4	7.4	0.0	0.0	766.0	768.2
7/21/2018	0.3	0.6	23.3	23.5	765.9	766.9	7.4	7.4	0.0	0.0	765.5	766.5
7/22/2018	0.1	0.6	23.3	23.5	765.3	766.0	7.4	7.4	0.0	0.0	764.9	765.7
7/23/2018	0.0	1.0	23.3	23.5	764.4	765.4	7.4	7.4	0.0	0.0	763.5	765.3
7/24/2018	0.3	1.2	23.3	23.5	763.8	764.7	7.4	7.4	0.0	0.0	762.6	764.3
7/25/2018	0.3	1.5	23.3	23.5	763.1	764.2	7.4	7.4	0.0	0.0	761.7	763.7
7/26/2018	0.3	1.2	23.3	23.5	762.7	763.6	7.4	7.4	0.0	0.0	761.5	763.1
7/27/2018	0.2	1.2	23.3	23.5	762.0	763.1	7.4	7.4	0.0	0.0	760.8	762.8
7/28/2018	0.1	1.2	23.3	23.5	761.2	762.5	7.4	7.4	0.0	0.0	760.0	762.3
7/29/2018	0.3	1.5	23.3	23.5	760.3	761.5	7.4	7.4	0.0	0.0	758.9	761.1
7/30/2018	0.3	1.2	23.3	23.5	760.0	760.9	7.4	7.4	0.0	0.0	758.8	760.5
7/31/2018	0.4	1.2	23.3	23.5	759.5	760.3	7.4	7.4	0.0	0.0	758.4	759.9

Circle Chart Index

Environmental Geo-Technologies, LLC 28470 Citrin Drive Romulus, MI 48174

Chart Recorder #1

Channel #1

Blue Pen - Well 1 Injection Pressure (chart value x 30)

Channel #2

Red Pen – Well 1 Annulus Pressure (chart value x 30)

Channel #3

Green Pen – Well 1 Flow Rate (chart value x 4)

Channel #4

Black Pen – Well 1 Annulus Tank Level (chart value x 0)

Chart Recorder #2

Channel #1

Blue Pen – Well 2 Injection Pressure (chart value x 30)

Channel #2

Red Pen – Well 2 Annulus Pressure (chart value x 30)

Channel #3

Green Pen – Well 2 Flow Rate (chart value x 4)

Channel #4

Black Pen – Well 2 Annulus Tank Level (chart value x 0)

Chart Recorder #3

Channel #1

Blue Pen – Injection pH Well 1 & 2 (chart value + 3.3)

Channel #2

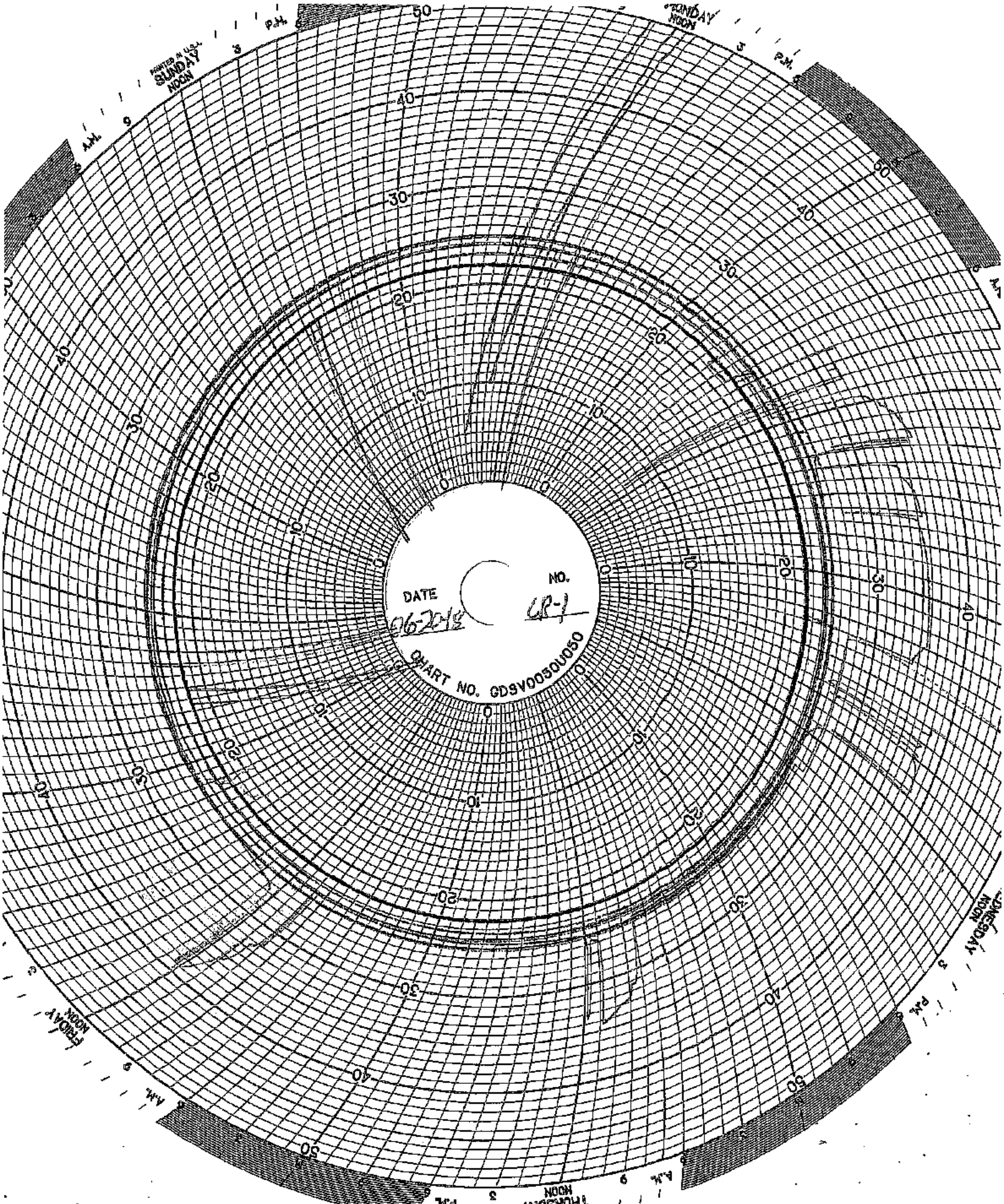
Red Pen – Well 1 Monthly Volume (chart value x 100,000)

Channel #3

Green Pen – Well 2 Monthly Volume (chart value x 100,000)

Channel #4

Black Pen – Temperature (chart value x 0)



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06-20-18
NO.
UP-1
CHART NO. GDSV0050U050
PRINTED IN U.S.A.
SUNDAY
NOON
MONDAY
NOON
WEDNESDAY
NOON
THURSDAY
NOON
FRIDAY
NOON
A.M.
P.M.

WELL 2 DATA

Well 02 Monthly Data

Date	Min Injection Pressure (PSIG)	Max Injection Pressure (PSIG)	Min Sight Glass Level (in)	Max Sight Glass Level (in)	Min Annulus Pressure (PSIG)	Max Annulus Pressure (PSIG)	Min Injectate pH	Max Injectate pH	Min Flow Rate (GPM)	Max Flow Rate (GPM)	Min Differentail Pressure (PSIG)	Max Differential Pressure (PSIG)
7/1/2018	0.0	0.0	21.2	21.9	305.9	313.2	3.1	3.1	0.0	0.0	305.9	313.2
7/2/2018	0.0	0.0	21.1	22.0	299.1	306.4	3.1	3.1	0.0	0.0	299.1	306.4
7/3/2018	0.0	0.0	21.2	21.9	293.1	299.4	3.1	3.1	0.0	0.0	293.1	299.4
7/4/2018	0.0	0.0	21.2	22.0	287.7	293.7	3.1	3.1	0.0	0.0	287.7	293.7
7/5/2018	0.0	0.0	21.2	21.9	281.9	288.2	3.1	3.1	0.0	0.0	281.9	288.2
7/6/2018	0.0	0.0	21.1	21.8	276.2	282.5	4.3	4.3	0.0	0.0	276.2	282.5
7/7/2018	0.0	0.0	21.1	21.7	271.5	276.8	4.3	4.3	0.0	0.0	271.5	276.8
7/8/2018	0.0	0.0	21.1	21.8	267.4	272.1	4.3	4.3	0.0	0.0	267.4	272.1
7/9/2018	0.0	0.0	21.0	21.8	263.5	268.0	4.3	4.3	0.0	0.0	263.5	268.0
7/10/2018	0.0	0.0	21.1	21.8	259.3	264.1	4.3	4.3	0.0	0.0	259.3	264.1
7/11/2018	0.0	0.0	21.0	21.7	255.4	259.8	4.3	4.3	0.0	0.0	255.4	259.8
7/12/2018	0.0	0.0	21.0	21.8	252.3	256.1	4.3	4.3	0.0	0.0	252.3	256.1
7/13/2018	0.0	0.0	21.1	21.8	249.5	252.9	4.3	4.3	0.0	0.0	249.5	252.9
7/14/2018	0.0	0.0	21.1	21.8	246.1	249.8	4.3	4.3	0.0	0.0	246.1	249.8
7/15/2018	0.0	0.0	21.0	21.9	243.3	246.7	4.3	4.3	0.0	0.0	243.3	246.7
7/16/2018	0.0	0.0	-11.9	21.9	0.0	1000.0	7.4	7.4	0.0	0.0	0.0	1000.0
7/17/2018	0.0	0.0	18.2	21.4	239.3	912.2	7.4	7.4	0.0	0.0	239.3	912.2
7/18/2018	0.0	0.0	18.9	20.2	0.0	1017.7	7.4	7.4	4.2	0.0	0.0	1017.7
7/19/2018	0.0	0.0	18.6	19.4	576.8	631.0	7.4	7.4	0.0	0.0	576.8	631.0
7/20/2018	0.0	0.0	18.6	19.4	543.9	577.5	7.4	7.4	0.0	0.0	543.9	577.5
7/21/2018	0.0	0.0	19.0	19.1	516.8	544.2	7.4	7.4	0.0	0.0	516.8	544.2
7/22/2018	0.0	0.0	18.9	19.0	493.9	517.1	7.4	7.4	0.0	0.0	493.9	517.1
7/23/2018	0.0	0.0	18.9	19.1	475.4	494.5	7.4	7.4	0.0	0.0	475.4	494.5
7/24/2018	0.0	0.0	18.6	19.4	459.3	476.1	7.4	7.4	0.0	0.0	459.3	476.1
7/25/2018	0.0	0.0	18.7	19.4	445.3	460.0	7.4	7.4	0.0	0.0	445.3	460.0
7/26/2018	0.0	0.0	18.6	19.5	432.6	445.9	7.4	7.4	0.0	0.0	432.6	445.9
7/27/2018	0.0	0.0	18.6	19.3	421.2	433.2	7.4	7.4	0.0	0.0	421.2	433.2
7/28/2018	0.0	0.0	18.6	19.3	410.8	421.6	7.4	7.4	0.0	0.0	410.8	421.6
7/29/2018	0.0	0.0	18.6	19.4	401.0	411.2	7.4	7.4	0.0	0.0	401.0	411.2
7/30/2018	0.0	0.0	18.7	19.4	391.8	401.6	7.4	7.4	0.0	0.0	391.8	401.6
7/31/2018	0.0	0.0	18.9	19.0	382.9	392.1	7.4	7.4	0.0	1.0	382.9	392.1

Circle Chart Index

Environmental Geo-Technologies, LLC 28470 Citrin Drive Romulus, MI 48174

Chart Recorder #1

Channel #1

Blue Pen - Well 1 Injection Pressure (chart value x 30)

Channel #2

Red Pen – Well 1 Annulus Pressure (chart value x 30)

Channel #3

Green Pen – Well 1 Flow Rate (chart value x 4)

Channel #4

Black Pen – Well 1 Annulus Tank Level (chart value x 0)

Chart Recorder #2

Channel #1

Blue Pen – Well 2 Injection Pressure (chart value x 30)

Channel #2

Red Pen – Well 2 Annulus Pressure (chart value x 30)

Channel #3

Green Pen – Well 2 Flow Rate (chart value x 4)

Channel #4

Black Pen – Well 2 Annulus Tank Level (chart value x 0)

Chart Recorder #3

Channel #1

Blue Pen – Injection pH Well 1 & 2 (chart value + 3.3)

Channel #2

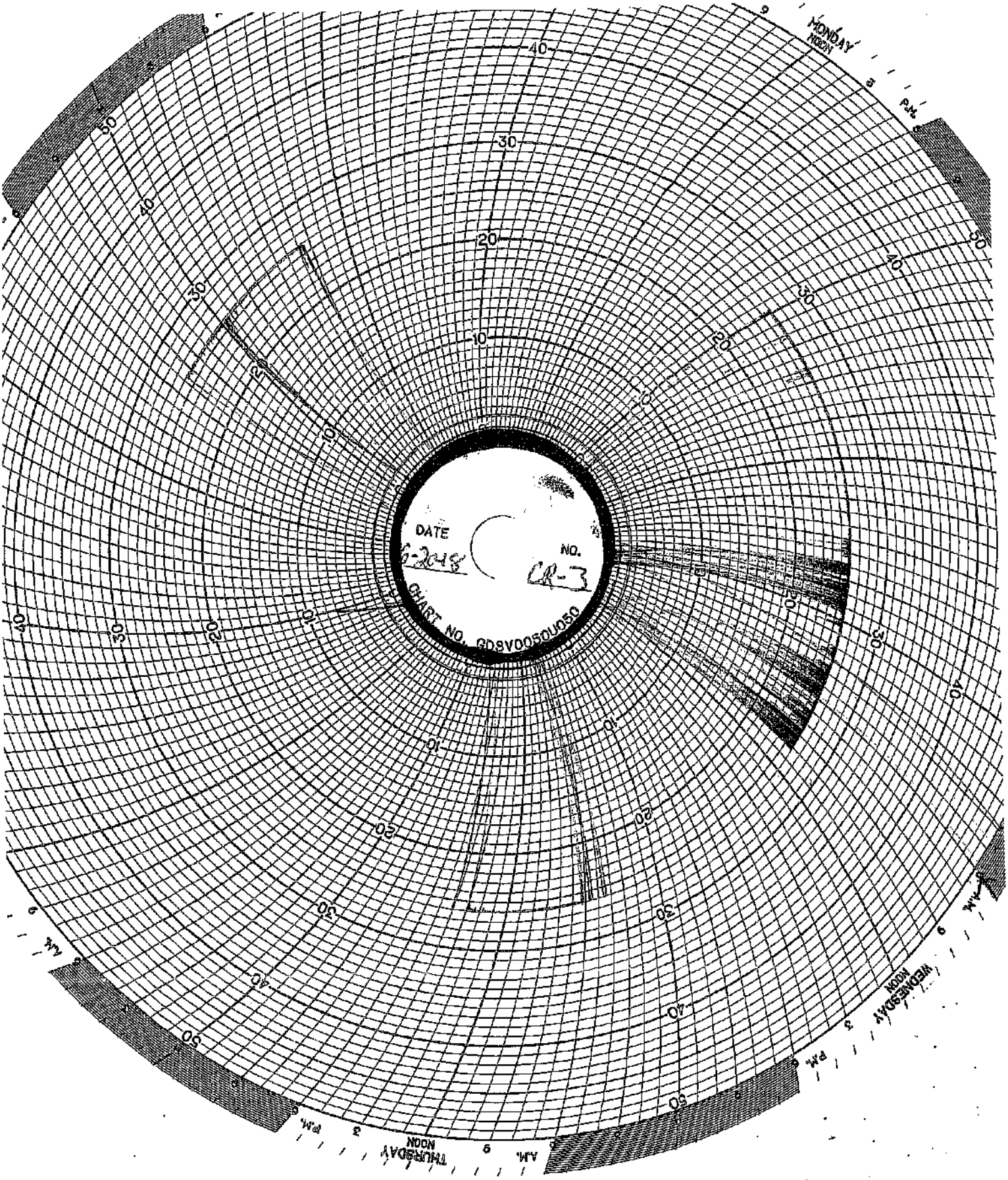
Red Pen – Well 1 Monthly Volume (chart value x 100,000)

Channel #3

Green Pen – Well 2 Monthly Volume (chart value x 100,000)

Channel #4

Black Pen – Temperature (chart value x 0)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TUESDAY
NOON
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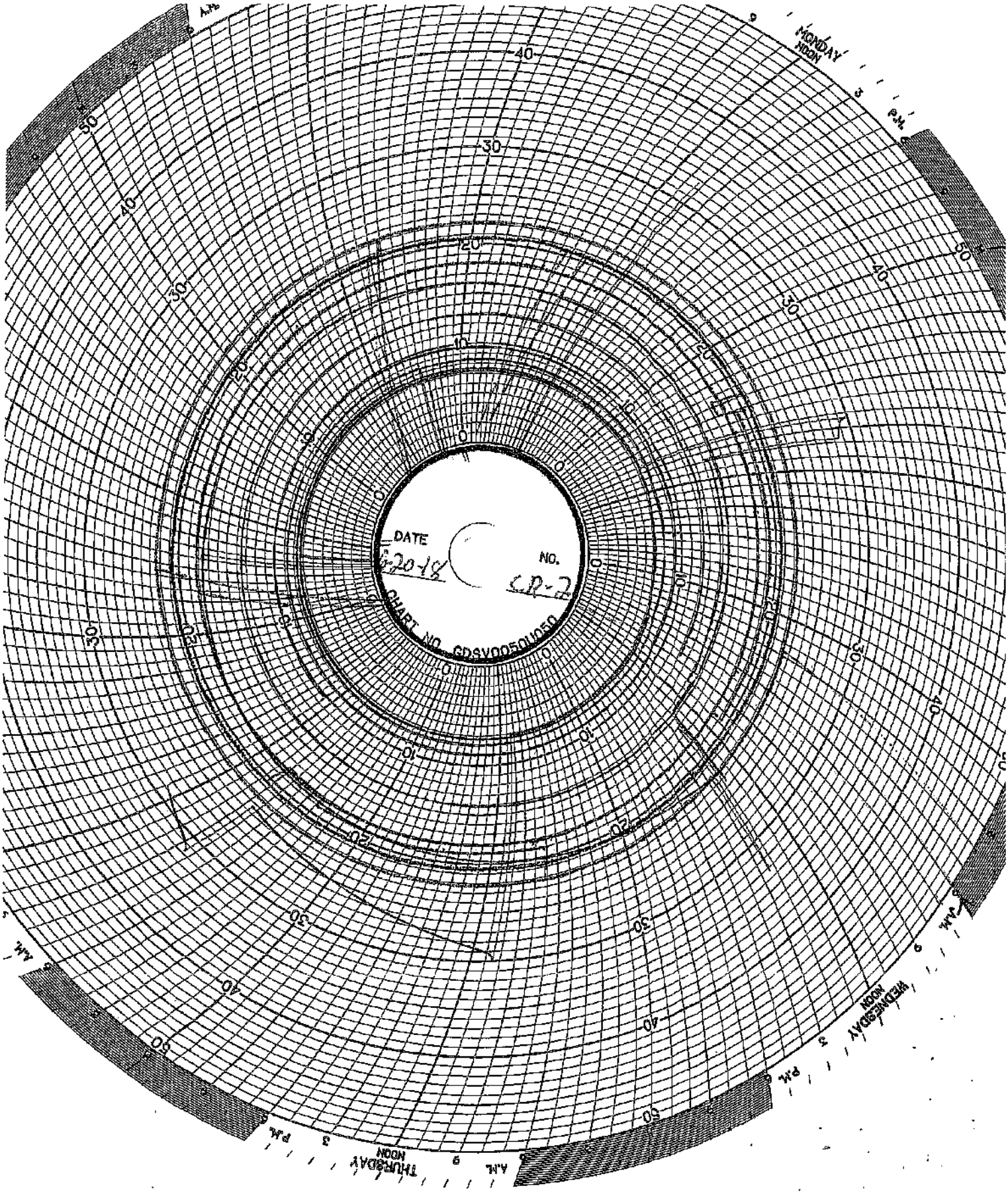
A.M.
P.M.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CR-2
CHART NO. GDSV00501U050
MONDAY
NOON
TUESDAY
NOON
WEDNESDAY
NOON
THURSDAY
NOON
A.M.
P.M.

MAINTENANCE LOG

UIC Monthly Maintenance Log

No Maintenance This Month

CORROSION MONITORING

CORROSION MONITORING COUPONS BASELINE VISUAL DESCRIPTION

November 4, 2013

Fiberglass

The fiberglass coupon is Red Box 2000 type and is 2-1/2 inches long by 1/2 inch wide and 1/4 inches thick. It is a dark orange (rust) in color with a glossy shine on one side a polished look on the opposite side and the cut edges look sanded.

Hastelloy

The hastelloy coupon is identified as C276 with serial number 1. The dimensions of the coupon are 3 inches long by 1/2 inch wide and 1/4 inch thick. The coupon is silver in color with a lightly sandblasted surface.

Stainless Steel

The stainless steel coupon is identified as 316L with serial number C1562. The dimensions of the coupon are 3 inches long by 1/2 inch wide and 1/4 inch thick. The coupon is silver in color with a lightly sandblasted surface.

GHESQUIERE PLASTIC TESTING, INC.

20450 HARPER AVENUE
HARPER WOODS, MI 48225
PHONE (313) 885-3565
FAX (313) 885-1771

Report Date: November 15, 2013
Test Date: October 15 - November 14, 2013

Report #1310-77651
Performed for:
Environmental Geo-Technologies
28470 Citrin Drive
Romulus, MI 48174

Attention: Mr. Don Anderson

WORK REQUESTED:

Perform Barcol Hardness test on sample submitted.

DESCRIPTION OF SAMPLE:

Sample submitted was identified as a fiberglass test coupon.

(P. O. #Credit Card).

WORK PERFORMED:

Test specimen was prepared as necessary and conditioned for a minimum of 24 hours at standard laboratory conditions prior to testing.

Barcol Hardness test was performed in accordance with the procedures of ASTM D2583-13. One specimen was tested.

RESULTS:

The following determination was made based upon the above test:

BARCOL HARDNESS

	Hardness
Specimen 1	90

Specimen is being returned with this report for further evaluation.

GHESQUIERE PLASTIC TESTING, INC.

M. W. Ghesquiere
President

MWG/kmi

TOTAL 1 PAGES

GHESQUIERE PLASTIC TESTING, INC.

20450 HARPER AVENUE
HARPER WOODS, MI 48225
PHONE (313) 886-8536
FAX (313) 886-1771

Report Date: February 17, 2014
Test Date: February 14 - 17, 2014

Report #1402-78036
Performed for:
Environmental Geo-Technologies
28470 Citrin Drive
Romulus, MI 48174

Attention: Mr. Don Anderson

WORK REQUESTED:

Perform Barcol Hardness test on sample submitted.

DESCRIPTION OF SAMPLE:

Sample submitted was identified as a fiberglass test coupon.

(P. O. #Credit Card).

WORK PERFORMED:

Test specimen was prepared as necessary and conditioned for a minimum of 24 hours at standard laboratory conditions prior to testing.

Barcol Hardness test was performed in accordance with the procedures of ASTM D2583-13. One specimen was tested.

RESULTS:

The following determination was made based upon the above test:

BARCOL HARDNESS

	Hardness
Specimen 1	90

Specimen was returned to the client on February 17, 2014.

GHESQUIERE PLASTIC TESTING, INC.

M. W. Ghesquiere
President

MWG/dm

TOTAL 1 PAGES

GHESQUIERE PLASTIC TESTING, INC.

20450 HARPER AVENUE
HARPER WOODS, MI 48225
PHONE (313) 885-3535
FAX (313) 885-1771

Report Date: June 16, 2014
Test Date: June 13 - 16, 2014

Report #1406-78499
Performed for:
Environmental Geo-Technologies, LLC
28470 Citrin Drive
Romulus, MI 48174

Attention: Mr. Don Anderson

WORK REQUESTED:

Perform Barcol Hardness test on sample submitted.

DESCRIPTION OF SAMPLE:

Sample submitted was identified as a fiberglass test coupon.

(P. O. #Credit Card).

WORK PERFORMED:

Test specimen was prepared as necessary and conditioned for a minimum of 24 hours at standard laboratory conditions prior to testing.

Barcol Hardness test was performed in accordance with the procedures of ASTM D2583-13. One specimen was tested.

RESULTS:

The following determination was made based upon the above test:

BARCOL HARDNESS

	Hardness
Specimen 1	85

Specimen was returned to the client June 16, 2014.

GHESQUIERE PLASTIC TESTING, INC.

M. W. Ghesquiere
President

MWG/dm

October 2, 2014

- TEST REPORT -

PN 118325
PO Attn:John Frost

PLASTICS TESTING DEPARTMENT

Prepared For:

John Frost
Environmental Geo-Technologies, LLC
28470 Citrin Drive
Romulus, MI 48174

Prepared By: _____ Approved By: _____

Melissa Martin
Sr. Project Technician

Jim Drummond
Physical & Plastics Testing, Manager

October 2, 2014

John Frost
Environmental Geo-Technologies, LLC

SUBJECT: Barcol Hardness on one material.
PO# Attn:John Frost

RECEIVED: One small section identified as; Fiberglass Coupon.

BARCOL HARDNESS ASTM D 2583-13a

	Results
Barcol Hardness, Instant	97

Prepared By: _____
Melissa Martin
Sr. Project Technician

Approved By: _____
Scott W. Yates
Plastics Testing Assistant Manager

st

October 22, 2015

· TEST REPORT ·

PN 125322
PO 00154

PLASTICS TESTING DEPARTMENT

Prepared For:

John Frost
Environmental Geo-Technologies, LLC
28470 Citrin Drive
Romulus, MI 48174

Prepared By: _____
Melissa Martin
Sr. Project Technician

Approved By: _____
Jim Drummond, Sr.
Physical & Plastic Testing, Manager

October 22, 2015

John Frost
Environmental Geo-Technologies, LLC

SUBJECT: Barcol Hardness on one material.

RECEIVED: One small section identified as; Fiberglass Coupon.

BARCOL HARDNESS ASTM D 2583-13a
Instant Reading

	Results
Barcol Hardness, Instant	96

Prepared By: Melissa Martin
Sr. Project Technician

Approved By: Scott W. Yates
Plastics Testing Assistant Manager

tc

December 12, 2016

-TEST REPORT-

PN 132662
PO

PLASTICS TESTING DEPARTMENT

Prepared For:

John Frost
Environmental Geo-Technologies, LLC
28470 Citrin Drive
Romulus, MI 48174

Prepared By: _____
Melissa Martin
Senior Project Technician

Approved By: _____
Jim Drummond
Physical Testing, Manager

Rev 041916

December 12, 2016

John Frost
Environmental Geo-Technologies, LLC

SUBJECT: Barcol Hardness on one (1) material.

RECEIVED: One (1) small section identified as; Fiberglass Coupon.

BARCOL HARDNESS ASTM D 2583-13a
Instant Reading

	RESULTS
Barcol Hardness, Instant	96

Prepared By: _____
Melissa Martin
Senior Project Technician

Approved By: _____
Scott Yates
Plastics Testing, Assistant Manager

wk

ARDL is ISO 17025 accredited by A2LA for the test methods listed on the certificates referenced on page one. NOTE: Non-ISO 17025 accredited test methods are designated with the ^ symbol to differentiate from ISO 17025 accredited methods in the body of the test report.

December 13, 2017

▪TEST REPORT▪

PN 139140

PO#

PLASTIC TESTING DEPARTMENT

Prepared For:

John Frost
Environmental Geo-Technologies, LLC
28470 Citrin Drive
Romulus, MI 48174

Prepared By: _____
Melissa Martin
Sr Project Technician

Approved By: _____
Jim Drummond
Rubber & Plastic Testing, Manager

Rev 041916

December 13, 2017

John Frost
Environmental Geo-Technologies, LLC

SUBJECT: Barcol Hardness on one material.

RECEIVED: One small section identified as; Fiberglass Coupon.

BARCOL HARDNESS ASTM D 2583-13a
Instant Reading

Results

Barcol Hardness, Instant	96

Prepared By: Melissa Martin
Sr Project Technician

Approved By: Scott Yates
Plastics Testing, Assistant Manager

sc

INJECTION
FINGERPRINTS

FINGERPRINT FORM

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC.

RECEIVING & APPROVAL FORM

RECEIVING INFORMATION	
Date 11:32a	8-5-18
Receiving ID#	I0808180 1
Manifest# Line:	
Land Ban Cert Included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time in	
Time out	
Received by	JKF
Sampled by	

COPY

LABORATORY ANALYSIS		PHYSICAL PROPERTIES	
Compatible? (RT#)	Yes No	Barium	
PCBs (ppm)(Oily Waste Only)?		Calcium	
TOC (ppm)(CC Waste Only)?		Total Iron	
Flash Point (°F)	>140°F	Magnesium	
pH (S.U.)	3.3	Sodium Chloride	
Cyanides? (mg/L)		Bicarbonate	
Sulfides? (ppm)		Carbonate	
Specific Gravity	1.01	TDS	2.3%
Physical Description		Resistivity	
Stream Consistency	Yes No	Sulfate	
Oil in Sample	Yes No		
Temperature	79°F		
Conductivity	19.9 mS		
% Solids	2.3%		
Turbidity	Yes No		
Color (visual)	GREEN		
TSS (%)	<0.1		
Radiation Screen (as needed)			
Lab Signature			

FINGERPRINT FORM

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC.

RECEIVING & APPROVAL FORM

RECEIVING INFORMATION	
Date 10:20a	8-16-18
Receiving ID#	I 08161801
Manifest# Line:	
Land Ban Cert Included	Yes No
EGT Approval #	
Generator	
Client	
Transporter	
Time in	
Time out	
Received by	JKF
Sampled by	

COPY

FINGERPRINTING (Laboratory)			
Compatible? (RT#)	(Yes) No	Barium	
PCBs (ppm)(Oily Waste Only)?		Calcium	
TOC (ppm)(CC Waste Only)?		Total Iron	
Flash Point (°F)	>180°F	Magnesium	
pH (S.U.)	6.0	Sodium Chloride	
Cyanides? (mg/L)		Bicarbonate	
Sulfides? (ppm)		Carbonate	
Specific Gravity	1.01	TDS	7.8%
Physical Description		Resistivity	
Stream Consistency	Yes No	Sulfate	
Oil in Sample	Yes No		
Temperature	76°F		
Conductivity	0.8 mS		
% Solids	7.8%		
Turbidity	Yes No		
Color (visual)			
TSS (%)	<0.1		
Radiation Screen (as needed)			
Lab Signature			

WASTE STREAMS
CHARACTERIZATIONS

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC
28470 Citrin Dr, Romulus, MI 48174. Telephone 734 946 1000. Fax 734 946 1002

Generator Waste Profile
Profile # 01323

GENERATOR INFORMATION

Name: [redacted] USEPA ID# _____

Facility Address: [redacted] SIC/NAICS Code: _____ State Code: _____

City: [redacted] State: [redacted] Zip Code [redacted]

Contact: _____ Title: _____ Phone: ( ) _____ Fax: ( ) _____

BILLING INFORMATION ☐ SAME AS ABOVE

Company Name: [redacted]

Address: [redacted]

City: [redacted] State: [redacted] Zip Code: [redacted]

Attention: [redacted] Phone: [redacted] Fax: [redacted]

WASTE INFORMATION

Name of Waste/Common Chemical Name:

Tank 75 & TRLR 2757

Process Generating Waste (Please *be specific, incomplete information may delay the approval process*):

Food Service

USEPA / STATE WASTE IDENTIFICATION

1. This waste is considered to be: ☐ Non Hazardous Liquid Industrial Waste ☒ Hazardous Waste
2. Regulated by TSCA? ☐ Yes ☒ No (PCBs, etc.)
3. List ALL Applicable Waste Codes: D002 _____ _____ _____ _____ _____ _____ _____ _____

PHYSICAL CHARACTERISTICS OF WASTE See Attached Laboratory Analyses

Color:	Suspended Solids	Layers:	Specific Gravity:	
☒ White/Clear	☒ 0-1 % ☐ 3-5 %	☐ Multi-Layered	☐ <0.8 ☒ 1.0 – 1.2	acceptable
☐ Black/Brown	☐ 1-3 % ☐ > 5%	☐ Bi-Layered	☐ 0.8 – 1.0 ☐ 1.3 – 1.4	07/3/18
☐ Other _____		☒ Single Phase	Exact / Other 1.02-1.04	

pH: ☐ NA ☒ ≤ 2 ☐ 2 – 4 ☐ 4 – 6 ☐ 6 – 8 ☐ 8 – 10 ☐ 10 – 12.5 ☐ ≥ 12.5

Liquid Flash Point: ☐ <73°F ☐ 73 – 100°F ☐ 101 – 140°F ☐ 141 – 200°F ☒ >200°F ☒ None ☒ Closed Cup ☐ Open Cup

VOC CONCENTRATION - _____ —0— PPM (MUST BE COMPLETED)

TOTAL COMPOSITION OF WASTE - *MUST BE EQUAL TO OR GREATER THAN 100% (LIST EACH CONSTITUENT >/= 0.1%)*

CONSTITUENT	MAX	MIN		CONSTITUENT	MAX	MIN	
Water	99	88	%				%
Acetic Acid (VINEGAR)	5	1	%				%
Alcohol (Ethanol/Methanol)	5	1	%				%
Solids	2	0	%				%
			%				%

Metals: Indicate if this waste contains any of the following metals. If Generator knowledge-provide backup
☒ Lab Analysis ☒ Generator Knowledge ☐ TCLP ☒ TOTAL

	Not Present	Concentration		Not Present	Concentration
PCB	☐	____ ppm	Aromatic Amine	☐	____ ppm
Dioxins	☐	____ ppm	Pesticides	☐	____ ppm
Cyanides Reactive	☐	____ ppm	Rodenticides	☐	____ ppm
Cyanides Total	☐	____ ppm	Fungicides	☐	____ ppm
Sulfides Reactive	☐	____ ppm			
Sulfides Total	☐	____ ppm			

Arsenic (As)	D004	☐ < 5 ppm	____ ppm
Barium (Ba)	D005	☐ <100 ppm	____ ppm
Cadmium (Cd)	D006	☐ < 1 ppm	____ ppm
Chromium (Cr)	D007	☐ < 5 ppm	____ ppm
Lead (Pb)	D008	☐ < 5 ppm	____ ppm
Mercury (Hg)	D009	☐ < 0.2 ppm	____ ppm
Selenium (Se)	D010	☐ < 1 ppm	____ ppm
Silver (Ag)	D011	☐ < 5 ppm	____ ppm

TCLP Organics D012 – D043 above regulatory limits: Present ☐ Not Present ☒

IS WASTE ANY OF THE FOLLOWING? *At Least One Box Must Be Checked.*
☐ Radioactive ☐ Water Reactive ☐ Oxidizer ☐ Shock Sensitive ☐ Reactive (other) ☐ DOT Explosives
☐ NIOSH Human-Positive Carcinogens ☐ NESHAP Wastes (Benzene, etc.) ☐ Biological ☒ None Apply

SHIPPING INFORMATION

1. Is this a DOT Hazardous Material (49CFR 172.101 & 173 Subpart D)? ☒ Yes ☐ No
2. Reportable Quantity (RQ) in pounds _____
3. DOT Shipping Name RQ, UN3265, Waste Corrosive Liquid, Acidic, organic, N.O.S. (Acetic Acid), Hazard Class 8 UN/NA 3265
PG I ERG 153 Hazardous Constituents for "n.o.s." Acetic Acid
4. Method of Shipment: ☒ Bulk Tanker ☒ Vac truck ☐ Rail Car ☐ Drums ☒ Totes
5. Number of Units to Ship Now: _____ 6. Anticipated Volume / Units per Year: Varies or ☐ One Time
6. Special Handling Requirements including PPE: _____

CERTIFICATION STATEMENT

I hereby represent and warrant that I have personally examined and am familiar with the information contained and submitted in this and all attached documents. Based on my inquiry and personal knowledge of those individuals responsible for supplying or obtaining the information, the information contained herein is true, accurate, and complete to the best of my knowledge and belief. Furthermore, no material fact has been omitted as to make this information misleading. I understand that others may rely on this representation and warranty in the handling and processing of the waste material described herein. If this box is checked ☐, I request Environmental Geo-Technologies not to correct any inconsistencies. Any corrections Environmental Geo-Technologies makes will be consistent with the results of the sample characterization and/or regulatory requirements.

Printed Name: [redacted] Title: [redacted]

Generator's Signature: [redacted] Date: 7/12/18

GENERATOR'S CHAIN OF CUSTODY RECORD INSTRUCTIONS:

PLEASE collect a representative 1-quart sample of the waste described in the above referenced GENERATORS WASTE PROFILE REPORT using an appropriate container. A representative sample is one obtained using any of the applicable sampling methods cited in 40 CFR 261-Appendix 1. Fill in the sampling information in the spaces provided below. If you have problems obtaining a representative sample of your waste, please contact your Environmental Geo-Technologies representative.

1. _____ SAMPLING METHOD 2. _____ COLLECTION POINT

3. _____ SAMPLE COLLECTOR'S NAME, TITLE, EMPLOYER

4. Sample No. _____ Preservation: Yes ☐ No ☐

5. CHAIN OF CUSTODY *Each person who handles the sample must sign below when the sample passes from one to another.*

Relinquished by: (Signature)	*Date*	*Time*	Received by: (Signature)	Date	Time

FINGERPRINT FORM

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC.

RECEIVING & APPROVAL FORM

RECEIVING INFORMATION	
Date	3/26/18
Receiving ID#	
Manifest# Line:	
Land Ban Cert Included	Yes No
EGT Approval #	
Generator	[redacted]
Client	Trlc #2757
Transporter	
Time in	
Time out	
Received by	PS
Sampled by	

LABORATORY ANALYSIS			
Compatible? (RT#) Acids	(Yes) No	Barium	
PCBs (ppm)(Oily Waste Only)?	N/A	Calcium	
TOC (ppm)(CC Waste Only)?	N/A	Total Iron	
Flash Point (°F)	> 140°F	Magnesium	
pH (S.U.)	2.0	Sodium Chloride	
Cyanides? (mg/L)	< 50	Bicarbonate	
Sulfides? (ppm)	< 200	Carbonate	
Specific Gravity	1.04	TDS	
Physical Description	liquid	Resistivity	
Stream Consistency	(Yes) No	Sulfate	
Oil in Sample	Yes (No)		
Temperature	64°F		
Conductivity	2mS		
% Solids	< 1%		
Turbidity	Yes (No)		
Color (visual)	colorless		
TSS (%)	< 1%		
Radiation Screen (as needed)	negative		
Lab Signature			

FINGERPRINT FORM

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC.

RECEIVING & APPROVAL FORM

Date	3/26/18
Receiving ID#	
Manifest# Line:	
Land Ban Cert Included	Yes No
EGT Approval #	
Generator	[redacted]
Client	Tank 75
Transporter	
Time In	
Time out	
Received by	PS
Sampled by	

Compatible? (RT#) Acids	(Yes) No	Barium	
PCBs (ppm)(Oily Waste Only)?	N/A	Calcium	
TOC (ppm)(CC Waste Only)?	N/A	Total Iron	
Flash Point (°F)	>140°F	Magnesium	
pH (S.U.)	2.4	Sodium Chloride	
Cyanides? (mg/L)	<30	Bicarbonate	
Sulfides? (ppm)	<200	Carbonate	
Specific Gravity	1.02	TDS	
Physical Description	Liquid	Resistivity	
Stream Consistency	(Yes) No	Sulfate	
Oil in Sample	Yes (No)		
Temperature	64°F		
Conductivity	7mS		
% Solids	2-3%		
Turbidity	Yes No		
Color (visual)	colorless		
TSS (%)	<1%		
Radiation Screen (as needed)	negative		
Lab Signature			

Vinegar (40 to 100 Grain)

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 01/25/2018 Supersedes: 06/01/2015 Version: 6.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Mixture.

Product name : Vinegar (40 to 100 grain).

Other means of identification : 40 - 100 grain vinegar.

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Food Product/Food Ingredient.

1.3. Details of the supplier of the safety data sheet

Mizkan Americas, Inc.
1661 Feehanville Dr., Suite 300
Mount Prospect, IL 60056
(847) 590-0059
www.mizkan.com

Contact Name: Shen Chang
VP of Quality, Food Safety
Phone: 847.590.0059 x1652
Cell: 847.797.4658
Email: Shen.Chang@mizkan.com

1.4. Emergency telephone number

Emergency number : CHEMTREC 1-800-424-9300
For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident, call CHEMTREC - Day or Night.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (GHS-US)

Eye Irritant 2A H319.

Full text of H-phrases: see section 16.

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :

GHS07

Signal word (GHS-US) : Warning.

Hazard statements (GHS-US) : H319 - Causes serious eye irritation.

Precautionary statements (GHS-US) : P264 - Wash exposed skin thoroughly after handling.
P280 - Wear protective gloves/protective clothing/eye protection.
P305 + P351 + P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing for 20 minutes.
P337 + P313 - If eye irritation persists: Get medical advice/attention.

2.3. Other hazards

No additional information available.

2.4. Unknown acute toxicity (GHS US)

Not applicable.

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable.

3.2 Mixtures

Name	Product identifier	%	Classification (GHS-US)
Acetic Acid	(CAS No) 64-19-7	4 - 10	Flam. Liq. 3, H226. Acute Tox. 4 (Dermal), H312. Skin Corr. 1A, H314. Aquatic Acute 3, H402.

Full text of H-phrases: see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

First-aid measures general : Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. Never give anything by mouth to an unconscious individual.

First-aid measures after inhalation : If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.

First-aid measures after skin contact : Gently wash with plenty of mild soap and water. Take off contaminated clothing and wash it before reuse.

First-aid measures after eye contact : Immediately flush with large amounts of water, holding eyelids open, for at least 20 minutes. Repeat if necessary. Remove contact lenses, if present and easy to do. Seek medical assistance if irritation persists.

First-aid measures after ingestion : Drink plenty of water. Do not induce vomiting. Do not give emetics or baking soda. Get medical advice/attention.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : Prolonged or excessive inhalation may cause respiratory tract irritation.

Symptoms/injuries after skin contact : Prolonged contact with material may irritate skin.

Symptoms/injuries after eye contact : Irritating to the eyes.

Symptoms/injuries after ingestion : No hazard in normal use. If accidentally ingested in large quantities, may cause gastrointestinal distress.

4.3 Indication of any immediate medical attention and special treatment needed

No additional information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Any. Use media appropriate for surrounding fire.

5.2 Special hazards arising from the substance or mixture

Fire hazard : Material is not combustible.

Reactivity : Stable under normal conditions of use.

5.3 Advice for firefighters

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection to protect from hazardous combustion products/oxygen deficiencies.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Avoid contact with skin and eyes. Evacuate area.

6.1.2. For emergency responders

Protective equipment : Wear PPE to prevent skin and eye contact.

Emergency procedures : Keep unauthorized personnel away.

6.2 Environmental precautions

Avoid release to the environment : Dike for treatment or disposal. Prevent entry into waterways, sewer, basements or confined areas. Stop the flow of material, if this is without risk.

6.3 Methods and material for containment and cleaning up

For containment : Contain spilled material. Water may be used to dilute.

Methods for cleaning up : Treat or dispose of waste material as a weak acid in accordance with all local, state/provincial, and national requirements. Water may be used to dilute.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	: Avoid contact with skin and eyes.
Hygiene measures	: Always wash with plenty of mild soap and water after handling the product. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions	: Keep container tightly closed in a dry and well-ventilated place.
Incompatible products	: Store away from strong oxidizing materials. Strong bases.

7.3. Specific end use(s)

Food Product/Food Ingredient.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Vinegar

ACGIH	Not Established.
OSHA	Not Established.

Acetic Acid (64-19-7)

ACGIH	ACGIH (TWA) (mg/m³)	25 mg/m³
ACGIH	ACGIH (TWA) (ppm)	10 ppm
ACGIH	ACGIH (STEL) (mg/m³)	37 mg/m³
ACGIH	ACGIH (STEL) (ppm)	15 ppm
OSHA	OSHA PEL (TWA) (mg/m³)	25 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	10 ppm
NIOSH	NIOSH REL (TWA) (mg/m³)	25 mg/m³
NIOSH	NIOSH REL (TWA) (ppm)	10 ppm
NIOSH	NIOSH REL (STEL) (mg/m³)	37 mg/m³
NIOSH	NIOSH REL (STEL) (ppm)	15 ppm

8.2. Exposure controls

Appropriate engineering controls	: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. General ventilation used in combination with local exhaust as necessary to control airborne contaminants to below acceptable exposure guidelines.
Personal protective equipment	: Avoid all unnecessary exposure.
Hand protection	: In case of repeated or prolonged contact wear gloves made of Butyl rubber or equivalent material.
Eye protection	: Chemical goggles or safety glasses.
Skin and body protection	: When prolonged or frequently repeated contact could occur, use protective clothing made of Butyl rubber or equivalent material.
Respiratory protection	: If exposure limits are exceeded or irritation is experienced, NIOSH approved respiratory protection should be worn.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid.
Color	: Appropriate color for type of vinegar.
Odor	: Appropriate odor for type of vinegar.
Odor threshold	: No data available.
pH	: 2.3 at 10% acetic acid (calculated).
Relative evaporation rate (butyl acetate=1)	: No data available.
Melting point	: No data available.

CONTINUED FROM 9.1.

Freezing point	: -3°C (26°F) at 10% acetic acid (calculated).
Boiling point	: 101°C (214°F) @ 760 mm Hg at 10% acetic acid (calculated).
Flash point	: Not applicable.
Auto-ignition temperature	: No data available.
Decomposition temperature	: No data available.
Flammability (solid, gas)	: Not applicable.
Vapor pressure	: 16.9 mm Hg @ 68°F at 10% acetic acid (calculated).
Relative vapor density at 20 °C	: 1.01 at 10% acetic acid (Water = 1).
Relative density	: No data available.
Solubility	: Soluble in water.
Log Pow	: No data available.
Log Kow	: No data available.
Viscosity, kinematic	: No data available.
Viscosity, dynamic	: No data available.
Explosive properties	: No data available.
Oxidizing properties	: Incompatible with strong oxidizers.
Explosive limits	: Not applicable.

9.2. Other information

No additional information.

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable under normal conditions of use.

10.2. Chemical stability

Stable.

10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

10.4. Conditions to avoid

Refer to Section 10 on Incompatible Materials.

10.5. Incompatible materials

Strong oxidizing agents. Strong bases.

10.6. Hazardous decomposition products

Combustion of surrounding materials may produce carbon monoxide and other harmful substances.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified.

Acetic Acid (64-19-7)	
LD50 oral rat	3310 mg/kg
LD50 dermal rabbit	1130 mg/kg
ATE US (oral)	3310.000 mg/kg body weight.
ATE US (dermal)	1130.000 mg/kg body weight.

Skin corrosion/irritation : Not classified.
pH: 2.3 at 10% acetic acid (calculated).

Serious eye damage/irritation : May causes serious eye irritation.
pH: 2.3 at 10% acetic acid (calculated).

Respiratory or skin sensitization : Not classified.

Germ cell mutagenicity : Not classified.

Carcinogenicity : Not classified.

CONTINUED FROM 11.1.

Reproductive toxicity : Not classified.

Specific target organ toxicity (single exposure) : Not classified.

Specific target organ toxicity (repeated exposure) : Not classified.

Aspiration hazard : Not classified.

Symptoms/injuries after inhalation : Prolonged or excessive inhalation may cause respiratory tract irritation.

Symptoms/injuries after skin contact : Prolonged contact with material may irritate skin.

Symptoms/injuries after eye contact : Irritating to the eyes.

Symptoms/injuries after ingestion : No hazard in normal use.

SECTION 12: Ecological information

12.1. Toxicity

Acetic Acid (64-19-7)

LC50 fish	88 mg/l
EC50 Daphnia	90.1 mg/l

12.2. Persistence and degradability

Vinegar (40 to 100 Grain) (8028-52-2)

Persistance and degradability	Biodegrades readily under aerobic and anaerobic conditions.

12.3. Bioaccumulative potential

Vinegar (40 to 100 Grain) (8028-52-2)

Bioaccumulative potential	This product is not expected to bioaccumulate.

12.4. Mobility in soil

No additional information available.

12.5. Other adverse effects

Effect on the global warming : No known ecological damage caused by this product.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Treat or dispose of waste material as a weak acid in accordance with all local, state/provincial, and national requirements.

SECTION 14: Transport information

In accordance with DOT.

Not regulated for transport.

Additional information

Other information : No supplementary information available.

ADR

No additional information available.

Transport by sea

No additional information available.

Air transport

No additional information available.

Vinegar (40 to 100 Grain)

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 15: Regulatory information

15.1 US Federal regulations

Acetic Acid (64-19-7)

Listed on the United States TSCA (Toxic Substances Control Act) inventory. Not listed on the United States SARA Section 313.	
RQ (Reportable quantity, section 304 of EPA's List of Lists):	5000 lb.

15.2 International regulations

CANADA

Vinegar (40 to 100 Grain)

WHMIS Classification	Class D Division 2 Subdivision B - Toxic material causing other toxic effects.

Acetic Acid (64-19-7)

WHMIS Classification	Class B Division 2 - Flammable Liquid. Class E - Corrosive Material.

EU-Regulations

No additional information available.

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

Not classified.

15.3 US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer and/or reproductive harm.

Acetic Acid (64-19-7)

U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities.
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations.
U.S. - Massachusetts - Right To Know List.
U.S. - New Jersey - Right to Know Hazardous Substance List.
U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances.
U.S. - Pennsylvania - RTK (Right to Know) List.
U.S. - Washington - Permissible Exposure Limits - TWAs.

SECTION 16: Other information

Revision date : 06/012015

Data sources : ChemADVISOR, Inc.[https://www.chemadvisor.com]. GESTIS DNEL Database [http://dnel-en.itrust.de/nxt/gateway.dll/dnel_en/000000.xml?f=templates$fn=default.htm$vid=dneleng:ddbeng$3.0/].

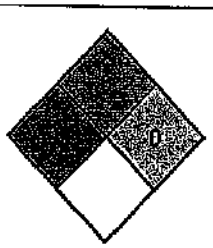
Full text of H-phrases:

Acute Tox. 4 (Dermal)	Acute toxicity (dermal) Category 4.
Aquatic Acute 3	Hazardous to the aquatic environment - Acute Hazard Category 3.
Eye Irritant 2A	Serious eye damage/eye irritation, Category 2A.
Flam. Liq. 3	Flammable liquids Category 3.
H226	Flammable liquid and vapor.
H312	Harmful in contact with skin.
H319	Causes serious eye irritation.
H402	Harmful to aquatic life.

NFPA health hazard : 1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.

NFPA fire hazard : 0 - Materials that will not burn.

NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III Rating	
Health	: 1 Slight Hazard - Irritation or minor reversible injury possible.
Flammability	: 0 Minimal Hazard.
Physical	: 0 Minimal Hazard.

SDS US (GHS HazCom 2012)

Mizkan Americas, Inc. does not represent or warrant that any hazard listed herein is the only hazard which exists. Effects can be aggravated by the presence of other materials or this material may aggravate or add to the effects of other materials. This information represents a compilation of data drawn directly from various sources. As of the date of preparation of this document, the information is believed to be accurate to the best of our knowledge.

Mizkan Americas, Inc. makes no warranty, express or implied, including (Without Limitation) warranties with respect to the completeness or continuing accuracy of the information contained herein or with respect to fitness for any particular purpose or use. There are no warranties which extend beyond description of the face here of. Mizkan assumes no liability for any loss or damage incurred from the use or misuse of the product.

Mizkan has no control over the material once it leaves its possession. The User has the sole responsibility: (1) to evaluate the applicability of the information contained herein; (2) to determine the suitability of the materials or product for any use; (3) to establish the manner of safe handling, use or storage of the materials or product; and (4) for meeting all applicable and required safety and health standards.

Vinegar (300 Grain)

mizkan
Bringing Flavor to Life

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 06/01/2015 Supersedes: 05/27/2014 Version: 5.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form	: Mixture.
Product name	: Vinegar (300 grain).
Other means of identification	: 300 grain vinegar.

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Product/Food Ingredient.

1.3. Details of the supplier of the safety data sheet

Mizkan Americas, Inc.
1661 Feehanville Dr., Suite 300
Mount Prospect, IL 60056
(847) 590-0059
www.mizkan.com

Contact Name: David Bierdeman
Director of Quality Assurance
(847) 590-0059 ext. 1306

1.4. Emergency telephone number

Emergency number : CHEMTREC 1-800-424-9300
For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident, call CHEMTREC - Day or Night.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (GHS-US)

Skin Corr. 1A H314.

Serious Eye Damage 1 H318.

Full text of H-phrases: see section 16.

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :

GHS05

Signal word (GHS-US) : Danger.

Hazard statements (GHS-US) : H314 - Causes severe skin burns and eye damage.

Precautionary statements (GHS-US) : P260 - Do not breathe mist, spray, or vapors.
P264 - Wash exposed skin thoroughly after handling.
P280 - Wear chemical goggles and face shield. Wear protective clothing and gloves made of Butyl rubber or equivalent material..
P301 + P330 + P331 - If swallowed: rinse mouth. Do NOT induce vomiting. Please drink plenty of water.
P303 + P361 + P353 - If on skin (or hair): Take off immediately all contaminated clothing. Gently wash with plenty of mild soap and water.
P304 + P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing.
P305 + P351 + P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing for 20 minutes. If eye irritation persists: Get medical advice/attention.
P310 - Immediately call a POISON CENTER.
P321 - Specific treatment (see Section 4 and the label).
P363 - Wash contaminated clothing before reuse.
P501 - Dispose of contents/container to comply with local/regional/national/international regulations.

2.3. Other hazards

No additional information available.

2.4. Unknown acute toxicity (GHS US)

Not applicable.

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable.

3.2. Mixture

Name	Product identifier	%	Classification (GHS-US)
Acetic Acid	(CAS No) 64-19-7	30	Flam. Liq. 3, H226. Acute Tox. 4 (Dermal), H312. Skin Corr. 1A, H314. Aquatic Acute 3, H402.

Full text of H-phrases: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. Never give anything by mouth to an unconscious individual.

First-aid measures after inhalation : If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.

First-aid measures after skin contact : Gently wash with plenty of mild soap and water. Take off contaminated clothing and wash it before reuse.

First-aid measures after eye contact : Immediately flush with large amounts of water, holding eyelids open, for at least 20 minutes. Repeat if necessary. Remove contact lenses, if present and easy to do. Seek medical assistance if irritation persists.

First-aid measures after ingestion : Drink plenty of water. Do not induce vomiting. Do not give emetics or baking soda. Get medical advice/attention.

4.2. Most important symptoms and effects both acute and delayed

Symptoms/injuries after inhalation : Irritating to the nose, throat, and respiratory tract.

Symptoms/injuries after skin contact : Contact with material may irritate or burn skin.

Symptoms/injuries after eye contact : Extremely irritating to the eyes. If not removed promptly, will injure eye tissue, which may result in permanent damage, including blindness.

Symptoms/injuries after ingestion : Can irritate or burn mouth, throat, and stomach if swallowed.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Any. Use media appropriate for surrounding fire.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Material is not combustible.

Reactivity : Stable under normal conditions of use.

5.3. Advice for firefighters

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection to protect from hazardous combustion products/oxygen deficiencies.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Avoid contact with skin and eyes. Evacuate area.

6.1.2. For emergency responders

Protective equipment : Use personal protective equipment as required. Wear personal protective equipment to prevent skin contact that is made of Butyl rubber or equivalent material. Wear chemical goggles and face shield to protect the eyes and face.

Emergency procedures : Keep unauthorized personnel away.

6.2. Environmental precautions

Avoid release to the environment : Dike for treatment or disposal. Prevent entry into waterways, sewer, basements or confined areas. Stop the flow of material, if this is without risk.

6.3. Methods and material for containment and cleaning up

For containment : Contain spilled material. Water may be used to dilute.

Methods for cleaning up : LARGE SPILLS PROCEDURE:
Contain spilled material. Large spills may be neutralized with dilute alkaline solutions of soda ash, or lime. Avoid runoff into storm sewers and ditches that lead to waterways. Treat or dispose of waste material as a weak acid in accordance with all local, state/provincial, and national requirements.

SMALL SPILLS PROCEDURE:
Treat or dispose of waste material as a weak acid in accordance with all local, state/provincial, and national requirements. Water may be used to dilute.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Avoid contact with skin and eyes.

Hygiene measures : Always wash with plenty of mild soap and water after handling the product. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep container tightly closed in a dry and well-ventilated place.

Incompatible products : Store away from strong oxidizing materials. Strong bases.

7.3. Specific end use(s)

Product/Food Ingredient.

SECTION 8: Exposure controls/personal protection

8.1.2. Control parameters

Vinegar	
ACGIH	Not Established.
OSHA	Not Established.

Acetic Acid (64-19-7)		
ACGIH	ACGIH (TWA) (mg/m³)	25 mg/m³
ACGIH	ACGIH (TWA) (ppm)	10 ppm
ACGIH	ACGIH (STEL) (mg/m³)	37 mg/m³
ACGIH	ACGIH (STEL) (ppm)	15 ppm
OSHA	OSHA PEL (TWA) (mg/m³)	25 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	10 ppm
NIOSH	NIOSH REL (TWA) (mg/m³)	25 mg/m³
NIOSH	NIOSH REL (TWA) (ppm)	10 ppm
NIOSH	NIOSH REL (STEL) (mg/m³)	37 mg/m³
NIOSH	NIOSH REL (STEL) (ppm)	15 ppm

8.2. Exposure controls

Appropriate engineering controls : Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Adequate controls should be utilized to control airborne levels to meet current regulations and guidelines.

Personal protective equipment : Avoid all unnecessary exposure.

Hand protection : In case of repeated or prolonged contact wear gloves made of Butyl rubber or equivalent material.

Eye protection : Wear chemical goggles plus face shield.

Skin and body protection : When prolonged or frequently repeated contact could occur, use protective clothing made of Butyl rubber or equivalent material.

Respiratory protection : If exposure limits are exceeded or irritation is experienced, NIOSH approved respiratory protection should be worn.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid.
Color	: Appropriate color for type of vinegar.
Odor	: Appropriate odor for type of vinegar.
Odor threshold	: 0.037-0.15 ppm acetic acid.
pH	: 2 at 30% acetic acid (calculated).
Relative evaporation rate (butyl acetate=1)	: No data available.
Melting point	: No data available.
Freezing point	: -9°C (15°F) at 30% acetic acid (calculated).
Boiling point	: 103°C (217°F) at 30% acetic acid (calculated).
Flash point	: Not applicable.
Auto-ignition temperature	: Not applicable.
Decomposition temperature	: No data available.
Flammability (solid, gas)	: Not applicable.
Vapor pressure	: 15.6 mm Hg at 30% acetic acid (calculated).
Relative vapor density at 20 °C	: 1.03 - 1.04 at 30% acetic acid (Water = 1).
Relative density	: No data available.
Solubility	: Soluble in water.
Log Pow	: No data available.
Log Kow	: No data available.
Viscosity, kinematic	: No data available.
Viscosity, dynamic	: No data available.
Explosive properties	: Not applicable.
Oxidizing properties	: Incompatible with strong oxidizers.
Explosive limits	: Not applicable.

9.2. Other information

No additional information.

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable under normal conditions of use.

10.2. Chemical stability

Stable.

10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

10.4. Conditions to avoid

Refer to Section 10 on Incompatible Materials.

10.5. Incompatible materials

Strong oxidizing agents. Strong bases.

10.6. Hazardous decomposition products

Combustion may produce carbon monoxide and other harmful substances.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified.

Acetic Acid (64-19-7)

LD50 oral rat	3310 mg/kg
LD50 dermal rabbit	1130 mg/kg
ATE US (oral)	3310.000 mg/kg body weight.
ATE US (dermal)	1130.000 mg/kg body weight.

CONTINUED FROM 11.1.

Skin corrosion/irritation	: Causes severe skin burns and eye damage. pH: 2 at 30% acetic acid (calculated).
Serious eye damage/irritation	: Causes serious eye damage. pH: 2 at 30% acetic acid (calculated).
Respiratory or skin sensitization	: Not classified.
Germ cell mutagenicity	: Not classified.
Carcinogenicity	: Not classified.
Reproductive toxicity	: Not classified.
Specific target organ toxicity (single exposure)	: Not classified.
Specific target organ toxicity (repeated exposure)	: Not classified.
Aspiration hazard	: Not classified.
Symptoms/injuries after inhalation	: Irritating to the nose, throat, and respiratory tract.
Symptoms/injuries after skin contact	: Contact with material may irritate or burn skin.
Symptoms/injuries after eye contact	: Extremely irritating to the eyes - If not removed promptly, will injure eye tissue, which may result in permanent damage, including blindness.
Symptoms/injuries after ingestion	: Can irritate or burn mouth, throat, and stomach if swallowed.

SECTION 12: Ecological information

12.1. Toxicity

Acetic Acid (64-19-7)	
LC50 fish	88 mg/l
EC50 Daphnia	90.1 mg/l

12.2. Persistence and degradability

Vinegar (300 Grain) concentrated (8028-52-2)	
Persistance and degradability	Biodegrades readily under aerobic and anaerobic conditions.

12.3. Bioaccumulative potential

Vinegar (300 Grain) concentrated (8028-52-2)	
Bioaccumulative potential	This product is not expected to bioaccumulate.

12.4. Mobility in soil

No additional information available.

12.5. Other adverse effects

Effect on the global warming : No known ecological damage caused by this product.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Treat or dispose of waste material as a weak acid in accordance with all local, state/provincial, and national requirements.

SECTION 14: Transport information

Additional information

Other information : No supplementary information available.

ADR

No additional information available.

Transport by sea

No additional information available.

Air transport

No additional information available.

SECTION 15: Regulatory information

15.1. US Federal regulations

Acetic Acid (64-19-7)

Listed on the United States TSCA (Toxic Substances Control Act) inventory. Not listed on the United States SARA Section 313.	
RQ (Reportable quantity, section 304 of EPA's List of Lists):	5000 lb.

15.2. International regulations

CANADA

Vinegar (300 grain) concentrated (8028-52-2)

WHMIS Classification	Class E - Corrosive Material.

Acetic Acid (64-19-7)

WHMIS Classification	Class B Division 2 - Flammable Liquid. Class E - Corrosive Material.

EU-Regulations

No additional information available.

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

Not classified.

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer and/or reproductive harm.

Acetic Acid (64-19-7)

U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities.
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations.
U.S. - Massachusetts - Right To Know List.
U.S. - New Jersey - Right to Know Hazardous Substance List.
U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances.
U.S. - Pennsylvania - RTK (Right to Know) List.
U.S. - Washington - Permissible Exposure Limits - TWA.s

SECTION 16: Other information

Revision date : 06/01/2015

Data sources : ChemADVISOR, Inc.[https://www.chemadvisor.com]. GESTIS DNEL Database [http://dnel-en.ltrust.de/nxt/gateway.dll/dnel_en/000000.xml?f=templates$fn=default.htm$vid=dneleng:ddbeng$3.0/].

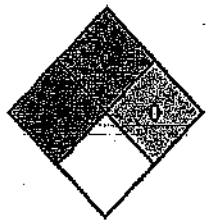
Full text of H-phrases:

Acute Tox. 4 (Dermal)	Acute toxicity (dermal) Category 4.
Aquatic Acute 3	Hazardous to the aquatic environment - Acute Hazard Category 3.
Flam. Liq. 3	Flammable liquids Category 3.
Skin Corr. 1A	Skin corrosion/irritation Category 1A.
H226	Flammable liquid and vapor.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H402	Harmful to aquatic life.

NFPA health hazard : 3 - Short exposure could cause serious temporary or residual injury even though prompt medical attention was given.

NFPA fire hazard : 0 - Materials that will not burn.

NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III Rating

Health : 3 Major Injury likely unless prompt action is taken and medical treatment is given.

Flammability : 0 Minimal Hazard.

Physical : 0 Minimal Hazard.

SDS US (GHS HazCom 2012)

Mizkan Americas, Inc. does not represent or warrant that any hazard listed herein is the only hazard which exists. Effects can be aggravated by the presence of other materials or this material may aggravate or add to the effects of other materials. This information represents a compilation of data drawn directly from various sources. As of the date of preparation of this document, the information is believed to be accurate to the best of our knowledge.

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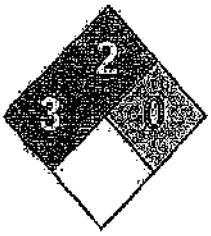
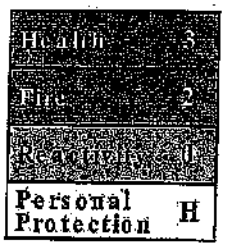
Chemicals & Laboratory Equipment





Material Safety Data Sheet
+/-Limonene MSDS

Section 1: Chemical Product and Company Identification

Product Name: +/-Limonene

Catalog Codes: SLL1558

CAS#: 138-86-3

RTECS: OS8100000

TSCA: TSCA 8(b) inventory: +/-Limonene

CI#: Not applicable.

Synonym: Dipentene

Chemical Name: Not available.

Chemical Formula: C10H16

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: 1-800-901-7247
International Sales: 1-281-441-4400

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
(+/-)Limonene	138-86-3	100

Toxicological Data on Ingredients: +/-Limonene LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects:
Extremely hazardous in case of eye contact (irritant), of ingestion. Very hazardous in case of skin contact (irritant), of inhalation. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:
Extremely hazardous in case of eye contact (irritant), of ingestion. Very hazardous in case of skin contact (irritant), of inhalation. CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. Repeated or prolonged inhalation of vapors may lead to chronic respiratory irritation.

Section 4: First Aid Measures

Eye Contact: Check for and remove any contact lenses. Do not use an eye ointment. Seek medical attention.

Verified: Stacy Boyd 2/22/16

Skin Contact:
After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: Not available.

Flash Points: CLOSED CUP: 45°C (113°F).

Flammable Limits: LOWER: 0.7% UPPER: 6.1%

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances: Highly flammable in presence of open flames and sparks.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Highly explosive in presence of open flames and sparks.

Fire Fighting Media and Instructions:
Flammable liquid. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:
Flammable liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources.

Section 7: Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not breathe gas/ fumes/ vapour/spray. In case of insufficient ventilation, wear suitable respiratory equipment If you feel unwell, seek medical attention and show the label when possible. Avoid contact with skin and eyes

Storage:
Flammable materials should be stored in a separate safety storage cabinet or room. Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well-ventilated place. Ground all equipment containing material. Keep container dry. Keep in a cool place.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: Not available.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Not available.

Taste: Not available.

Molecular Weight: 136.23 g/mole

Color: Not available.

pH (1% soln/water): Not available.

Boiling Point: 168°C (334.4°F)

Melting Point: -40°C (-40°F)

Critical Temperature: Not available.

Specific Gravity: 0.85 (Water = 1)

Vapor Pressure: 1.3 mm of Hg (@ 20°C)

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Not available.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Not available.

Corrosivity: Not considered to be corrosive for metals and glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
LD50: Not available. LC50: Not available.

Chronic Effects on Humans: Not available.

Other Toxic Effects on Humans:
Extremely hazardous in case of ingestion. Very hazardous in case of skin contact (irritant), of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: CLASS 3: Combustible liquid with a flash point greater than 37.8C (100F).

Identification: : Flammable liquids n.o.s. : UN1993 PG: Not available.

Special Provisions for Transport: No DOT, ref 49CFR, 173.150

Section 15: Other Regulatory Information

Federal and State Regulations: TSCA 8(b) inventory: +/-Limonene

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada):
CLASS B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F). CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):
R10- Flammable. R38- Irritating to skin. R41- Risk of serious damage to eyes.

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 2

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 3

Flammability: 2

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/09/2005 05:58 PM

Last Updated: 05/21/2013 12:00 PM

Waste Characterization Form

Profile # [redacted] 01365 Date 9/26/2017

acceptable
07/17/18

A. General Information

GENERATOR FACILITY

Generator [redacted]
SBU
Site Contact
Address
City
State Zip
Phone # Ext.
E-Mail
USEPA ID#
State ID#
Charge Code

B. Waste Identification

Waste Name **Fluoromonomers Wastewater**

Process Knowledge [X] Yes [ ] No Analytical [ ] Yes [X] No Analytical Attached [ ] Yes [X] No

Description of Process Generating Waste **FPS/IXM Process Wastewater**

State Waste ID Number: **N/A**

C. Regulatory Information

Is this a USEPA hazardous waste? [ ] Yes [x] No

Is this an acutely hazardous waste (40 CFR 261.31 and 33) [ ] Yes [x] No

List the USEPA hazardous waste codes. Specify the nature of any D003 waste in section H(1): **None**

List any State Waste Codes or other state designations:

[N]	CERCLA Regulated (Superfund) Waste	[N]	Medical Waste	[N]	Lab Pack (40 CFR 268)
[N]	Subpart CC Regulated (40 CFR 264)	[N]	TSCA Regulated	[N]	Hazardous Debris (Subject to alternative LDR treatment standards)
[N]	Ozone Depletion (40 CFR 82)	[N]	FIFRA Regulated	[N]	OLM (oil-like material 40 CFR 112)

Have all 40 CFR Part 261 Appendix VIII Compounds been listed/considered? [x] Yes [ ] No

Is this waste stream subject to a NESHAP/MACT Standard? Yes [ ] No [x]

If yes, please list which standard (i.e. Benzene NESHAP, HON Subpart G)

D. General Characteristics (at 70°F unless otherwise specified)

COLOR **clear to turbid**

ODOR [x] None [ ] Mild [ ] Strong

[x]	Liquid 100 %	PHASES	
[ ]	Solid %	[x]	Single Layer
[ ]	Sludge %	[ ]	Double Layer
		[ ]	Multi-Layer

Does the waste contain liquids per the paint filter test? Yes [x] No [ ]

Is waste a soil and/or a debris? No [x] Yes [ ]

[ ] Wastewater (<1% TOC & <1% TSS) [ ] Non-Wastewater as defined in 40 CFR 268.2

E. Handling Instructions

If special handling techniques are required, such as PPE, spills, fire response, etc.:
butyl gloves and goggles

Will waste clog a 1/16" nozzle? [ ] Yes [x] No [ ] N/A

F. Shipping Information

DOT PROPER SHIPPING DESCRIPTION **Environmentally Hazardous Substance, Liquid, n.o.s.**

Technical N.O.S. descriptions **Potassium Hydroxide** ERG # **171**

HAZ. CLASS **Misc.** UN or NA ID Number **UN 3082** Packing Group **III** RQ **1000 lbs**

DOT Placard **9** DOT Labels **9** [ ] Marine Pollutant

Shipping Containers

Volume of shipment		Frequency	Container Type	Material of Construction	Container Size	
44,000	**LBS**		**Tanker**		**6,000**	**gallons**

If a drum, is it open top or bung? **N/A** Type of absorbent, if any? **N/A**

[redacted] Profile # [redacted]

G. Chemical Composition - Sum of the Typical should equal 100%.

All Constituents must be specifically identified and physical composition listed separately (e.g., toluene, benzene)
Include all constituents >1%, or >0.1% for carcinogens, or >100 ppm for Appendix VIII.

CAS Number	Chemical Name	Typical		Min		Max		Exp. Limit OSHA/ACGIH
7732-18-5	Water	76.2	%	70	%	100	%	
7789-23-3	Potassium Fluoride	2.0	%	0	%	3	%	
7681-49-4	Sodium Fluoride	0.3	%	0	%	1	%	
	Fluorocarbon Salts	1.5	%	0	%	2	%	
584-08-7	Potassium Carbonate	10.0	%	0	%	20	%	
497-19-8	Sodium Carbonate	0.6	%	0	%	1	%	
1310-58-3	Potassium Hydroxide	3.0	%	0	%	5	%	
1310-73-2	Sodium Hydroxide	1.0	%	0	%	3	%	
7646-93-7	Potassium Hydrogen Sulfate	2.1	%	0	%	2.5	%	
	Nalco 71300 Flocculant:	<1	%	0	%	1	%	
64742-47-8	Hydrotreated light distillate		%		%		%	
9005-67-8	Ethoxylated sorbitan monostearate		%		%		%	
68002-97-1	Ethoxylated C10-16 Alcohols		%		%		%	
67-56-1	Methanol	0.1	%	0	%	0.3	%	
7757-82-6	Sodium Sulfate	1	%	0	%	4	%	
7681-38-1	Sodium Bisulfate	1	%	0	%	2	%	
7722-84-1	Hydrogen Peroxide	0	%	0	%	0.2	%	
127-08-2	Potassium Acetate	0	%	0	%	0.2	%	
127-09-3	Sodium Acetate	0	%	0	%	0.2	%	
111-46-6	Diethylene glycol	0	%	0	%	0.1	%	
7757-79-1	Potassium Nitrate	0.05	%	0	%	1	%	
67-68-5	Dimethyl Sulfoxide	0.02	%	0	%	0.1	%	
7681-52-9	Sodium Hypochlorite	0.1	%	0	%	1	%	
7647-14-5	Sodium Chloride	1	%	0	%	2	%	
		100.0	% TOTAL					

Has a waste specific SDS been attached? [X] No [ ] Yes SDS # _____
Has a combination of component MSDS's been attached? [ ] Yes [X] No

H. (1) Hazardous Characteristics and Other Components - Section must be completed.

N	Acid Reactive	N	Water Reactive
N	Alkaline Reactive	N	Air Reactive
N	Carcinogen (or suspect)	N	Pyrophoric
N	Cyanosis Causing Chemicals	N	Biological/Infectious
N	Poison Inhalation Hazard (DOT)	N	Dust Hazard
N	Polymerizable	N	Asbestos
N	Peroxides/Oxidizers	N	Ignitable
N	Explosive/Shock Sensitive	N	Corrosive
N	Reactive Cyanides/Sulfides	N	Radioactive
N	Pesticides/Herbicides/Rodenticides		

(2) Physical Characteristics

	Minimum	Maximum	Actual
Vapor Pressure (psi)			
Specific Gravity			
Viscosity (cP 70° F)			
pH	6	12	
BTU/lb			
Flash Point (closed cup °F)			

(3) Trace Constituents

	Conc	Units
Antimony (Sb)		
Arsenic (As)		
Barium (Ba)		
Beryllium (Be)		
Cadmium (Cd)		
Chromium (Cr)		
Cobalt (Co)		
Copper (Cu)		
Lead (Pb)		
Manganese (Mn)		
Mercury (Hg)		
Nickel (Ni)		
Selenium (Se)		
Silver (Ag)		
Thallium (Tl)		
Vanadium (V)		
Benzene		
Dioxin/Furans		
Polycyclic Aromatics		
Polybrominated Biphenyls		
PCB's		

Generator Comments:

HMIS INFO: H - 2 F - 0 R - 0

Generator Profile Certification:

I certify that the information provided in this document is true, accurate, and complete to the best of my knowledge.

[redacted] 9/26/2017 [redacted]

Name & Title (typed or printed) Date Generator's Authorized Signature

Solid Waste Profile Form

01366

Common Waste Name: Spent Hydrofluoric Acid

Howmet Plant and EPA ID: Plant 5, MID000722942

Regulatory Waste Type: EPA RCRA Hazardous

Section 1 - General Description of Waste

Common Waste Name: Spent Hydrofluoric Acid

Waste Generating Process: Wasste acid from the chemical milling of titanium castings

RCRA Waste Codes: D002, D005, D007, D008

US DOT Proper Shipping Name: RQ, UN1790, Waste Hydrofluoric Acid

Hazard Class: 8, (6.1) **UN/NA:** UN1790 **PG:** II ☒ Reportable Quantity (RQ)

ERG ID#: 157 **Source Code:** W103

Section 2 - Chemical Composition of Waste

The constituent information is based on: ☐ Generator Knowledge ☒ Analytical Testing ☐ SDS ☐ Other

List all constituents present in the waste. The concentration ranges should total 100%.

Constituents	Concentration Range

Section 3 - Characteristics of Waste

Acceptable
07/31/18

Physical Characteristics (at 70 Degrees Fahrenheit)

- ☐ Solid
- ☒ Liquid
- ☐ Gas
- ☐ Multiple Phases
  - ☐ Containing Solids % Solid Range:
  - ☐ Containing Liquids % Free Liquid Range:

Additional Characteristics

Color: Odor:

Flash Point: Boiling Point:

pH Range: % Halogens:

Density: BTUs/lb:

- ☐ Powder
- ☐ Thick Liquid or Suspension
- ☐ Material can be pumped
- ☐ Material can be poured
- ☐ Other Describe:

Hazards

- ☐ Carcinogen
- ☐ Compressed Gas
- ☒ Corrosive
- ☐ Explosive
- ☐ Flammable
- ☐ Infectious
- ☐ Irritant
- ☐ Non-Hazardous
- ☐ Oxidizer
- ☐ Poison – Inhalation Hazard
- ☐ Pyrophoric
- ☐ Radioactive
- ☐ Reactive
- ☐ Shock Sensitive
- ☒ Toxic
- ☐ Water Reactive
- ☐ Other Hazard:

Section 4 - Regulatory Requirements of Waste

Check all that apply to the waste:

- ☐ EPA RCRA Listed Hazardous Waste (F,K,P,U Codes)
- ☒ EPA RCRA Characteristic Waste (D001-D003)
- ☐ EPA RCRA Characteristic Toxicity Metals (D004-D011)
- ☐ EPA RCRA Characteristic Toxicity Pesticides and Herbicides (D012-D017, D020, and D031)
- ☐ EPA RCRA Characteristic Toxicity Waste (D018, D019, D021-D030, D032-D043)
- ☐ Michigan Hazardous Waste Codes Part 111 of Act 451
- ☐ Michigan Hazardous Waste Codes Part 121 of Act 451
- ☐ State Waste Codes

List applicable waste codes:

D002

D005, D007, D008

- ☐ Universal Waste
- ☐ Asbestos
- ☐ Debris Debris Size: _____
- ☐ Waste Subject to RCRA Subpart CC Controls
- ☐ Empty Waste Containers (R299.9207; 40 CFR 761.79)
- ☐ Dioxins
- ☐ Class I or Class II Ozone-Depleting Substances
- ☐ Waste from CERCLA (40 CFR 300, Appendix B) or MDNRE Mandated Cleanup
- ☐ Radioactive Elements Regulated by the NRC
- ☐ PCBs regulated under 40 CFR 147; 40 CFR 761; or PCB Compounds regulated under Part 121 of Act 451

PCB Concentration (ppm): _____

Section 5 - Land Disposal Restrictions

☒ Subject to Land Disposal Restrictions

- ☒ Restricted Waste
- ☐ Requires Treatment
- ☐ Meets Treatment Standard
- ☐ Not Applicable

Applicable Subcategory: _____ Applicable Treatment Standard: _____

Treatment Technology Required _____

☐ Subject to one-time notice [40 CFR 268.7(a)(7)

Section 6 - Subpart CC Determination/Compliance

- ☒ Not Applicable
- ☐ Exempt: managed in containers <0.1 cubic meters
- ☐ Exempt: VOC <500ppm by weight
- ☐ Applicable, Waste required to be in Level 1 Container with organic suppression

Section 7 - Onsite and Shipping Container Information

Quantity of waste for disposal: (gallon, pounds, etc.) G - Gallons

Waste Generation Frequency: (month, quarter, year, etc.) Quarterly

Onsite Container Management

Type of Onsite Container (metal drum, tanker truck, poly drum, etc.) DM - Metal Drums, Barrels, Kegs

Size of accumulation container(s): (1-gallon, 55-gallon, etc.) 6,800 gallons

Shipping Container Management

Type of Shipping Container (metal drum, tanker truck, poly drum, etc.) TT - Cargo Tanks (Tank Trucks)

Size of Shipping Container(s): (1-gallon, 55-gallon, etc.) ~5,000 gallons

☒ Ongoing Shipment ☐ One Time Shipment

Container Contents: ☐ Solid ☒ Liquid ☐ Gas ☐ Lab Pack ☐ Loose Pack ☐ Bulk ☐ Vials

[If Lab Pack or Loose Pack, do not complete Section 6.]

Is the waste a commercial chemical product in its original labeled container? ☐ Yes ☒ No

Personal Protection Equipment Requirements (Describe):

Section 8 - Final Disposition

Waste Destination: Offsite TSDF/Recycle

If the material is sent offsite, complete Transporter and TSDF below:

Transporter: Vickery Environmental (OHR000103762)

Treatment, Storage, and Disposal Facility: Vickery Environmental (OHD020273819)

Revised By:

Date Revised:

LIMS106 - Non Alloy Lab Report
Run Date : 9/28/2009

[redacted]

Plant Id and Name	Lot No	Batch ID	Lab No	Base Spec	Rev	Amend	Eng	Class
5 TI-CAST	233 NEW	2582561	S-09-038298	C5049	M			

Project Nbr	Job ID	Serial	Sample	Tested by	Test Reason	Disp	PO Number	Quantity	Units	Contact Id
40002	2540002	NEW	LQ	HRC	PR					Mark Peels, Process Control Tech

Material Description
HYDROFLUORIC ACID

Vendor Name

Source
[redacted]

Desc
ACID BATH NEW

COMPOUNDS & COMBINATIONS (By Weight)

Parameter	Results	Units	Min	Max	Instrument
HF	3	%	2	4	Titration
HNO3	39	%	25	45	Titration

Approved By	Date Approved
[redacted]	9/28/2009

NEW BATH #233 95 DEGREE

Reported Results Meet All Specification Requirements

LIMS106 - Non Alloy Lab Report
Run Date : 9/26/2009

[redacted]

Plant Id and Name	Lot No	Batch ID	Lab No	Base Spec	Rev	Amend Eng	Class
5 TI-CAST	232 DUMP	2582550	S-09-038297	C5049	M		

Project Nbr	Job ID	Serial	Sample	Tested by	Test Reason	Disp	PO Number	Quantity	Units	Contact Id
40002	2540002	DUMP	LQ	HRG	PR					Mark Peels, Process Control Tech

Material Description: HYDROFLUORIC ACID
Vendor Name:
Source: [redacted]
Desc: ACID DUMP BATH

COMPOUNDS & COMBINATIONS (By Weight)

Parameter	Results	Units	Min	Max	Instrument
HF	2	%	2	4	Titration
HNO3	38	%	25	45	Titration

Approved By	Date Approved
[redacted]	9/26/2009

DUMP BATH #232 95 DEGREE

Reported Results Meet All Specification Requirements

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Fax No: (248) 591-6668

Dynecol, Inc.
6520 Georgia St
Detroit, MI 48211-1594

Test:Report
Order ID: 0701164
MAS Sample #: 070125015
Date Completed: 02/01/2007
PO Number: 20319

Project ID: [redacted]
Sample Identification: 2436 Acid Rinse
Physical Description: Liquid
Sample Date/Time: 01/22/2007

Method Number	Parameter	Result	Units	EQL	Regulatory Limit	Analyst	Date Analyzed	Data Flag
SW 846 9040B	pH	<2.0	units	2.0	12.5	DF	01/26/2007	
SW 846 1010	Ignitability	90	°F	76	140	DF	01/30/2007	
SW 846 7.3.3.2	Cyanide-Reactive	N/D	mg/Kg	20	250	DF	01/30/2007	
40 CFR 261.23.5	Sulfide-Reactive	Negative	N/A	500	500	DF	01/26/2007	
SW 846 9020B	Total Organic Halogens	33	mg/Kg	6.3	N/A	RD	01/30/2007	
	TCLP Metals:							
SW 846 6010B	Arsenic	3.1	mg/L	0.42	5	MV	02/01/2007	
SW 846 6010B	Barium	190	mg/L	1.2	100	MV	02/01/2007	
SW 846 6010B	Cadmium	N/D	mg/L	0.13	1	MV	02/01/2007	
SW 846 6010B	Chromium	11	mg/L	0.13	5	MV	02/01/2007	
SW 846 6010B	Lead	N/D	mg/L	0.15	5	MV	02/01/2007	
SW 846 7470A	Mercury	N/D	mg/L	0.020	0.2	MV	01/31/2007	
SW 846 6010B	Selenium	N/D	mg/L	0.25	1	MV	02/01/2007	
SW 846 6010B	Silver	0.13	mg/L	0.13	5	MV	02/01/2007	
	PCB:							
SW 846 8082	Aroclor - 1016	N/D	mg/Kg	0.50	N/A	DB	01/29/2007	
SW 846 8082	Aroclor - 1221	N/D	mg/Kg	0.50	N/A	DB	01/29/2007	
SW 846 8082	Aroclor - 1232	N/D	mg/Kg	0.50	N/A	DB	01/29/2007	
SW 846 8082	Aroclor - 1242	N/D	mg/Kg	0.50	N/A	DB	01/29/2007	
SW 846 8082	Aroclor - 1248	N/D	mg/Kg	0.50	N/A	DB	01/29/2007	
SW 846 8082	Aroclor - 1254	N/D	mg/Kg	0.50	N/A	DB	01/29/2007	
SW 846 8082	Aroclor - 1260	N/D	mg/Kg	0.50	N/A	DB	01/29/2007	

pH measured at 18° C.

Charles Hindbaugh
Charles Hindbaugh
Quality Manager

FINGERPRINT FORM

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC.

RECEIVING & APPROVAL FORM

RECEIVING INFORMATION	
Date	7-30-18
Receiving ID#	HF-SVR BATH
Manifest# Line:	
Land Ban Cert included	Yes No
EGT Approval #	
Generator	[redacted]
Client	
Transporter	
Time in	
Time out	
Received by	JKF
Sampled by	JKF

LAB INFORMATION All Waste Streams		Oilfield Waste Only	
Compatible? (RT#)	(Yes) No	Barium	
PCBs (ppm)(Oily Waste Only)?	NA	Calcium	
TOC (ppm)(CC Waste Only)?	NA	Total Iron	
Flash Point (°F)	>140°F	Magnesium	
pH (S.U.)	0.1	Sodium Chloride	
Cyanides? (mg/L)	<30	Bicarbonate	
Sulfides? (ppm)	<200	Carbonate	
Specific Gravity	1.7	TDS	
Physical Description	LIQUID	Resistivity	
Stream Consistency	(Yes) No	Sulfate	
Oil in Sample	Yes (No)		
Temperature	77°F		
Conductivity	400 mS		
% Solids	12.5		
Turbidity	Yes (No)		
Color (visual)	DRK GREEN		
TSS (%)	<0.1		
Radiation Screen (as needed)	(NEGATIVE)		
Lab Signature	John Foss		

[redacted] 01366

Solid Waste Determination

as required by 40 CFR 262.11 and 262.40(c)

Spent Hydrofluoric Acid

Waste Common Name

Spent Hydrofluoric Acid

Description

Waste acid from the chemical milling of titanium castings

Generating Source

Chemical milling

Physical Form

Liquid

Regulatory Status

- [X] EPA Hazardous
- [ ] State Hazardous
- [ ] Non Haz, MI Liquid Industrial Waste
- [ ] Universal Waste
- [ ] Other Regulated (CAA/TSCA/OSHA)
- [ ] Used Oil
- [ ] Recycled Material
- [ ] Municipal Solid Waste
- [ ] Wastewater (CWA)

comments

EPA/State Hazardous Waste Number(s)

D002, D005, D007, D008

Listings

- [ ] Non-specific source
- [ ] Specific source
- [ ] Discarded commercial chemical

comments

Characteristics

	waste code	determined by testing	determined by knowledge
[ ] Toxicity	D004		

comments

[X] Corrosivity*	D002		[X]

comments

[ ] Reactivity	D003		

comments

[ ] Ignitable	D001		

comments

*Indicate the date of most recent analytical

Land Disposal Restrictions [LDR Subpart C]

- [ ] Not applicable
- [X] restricted waste
- [X] requires treatment
- [ ] meets treatment standard

Applicable subcategory: D002 Corrosive

Applicable treatment standard: NEUTR/ DEACT pH >2 and <12.5

- [ ] subject to one-time notice [40 CFR 268.7(a)(7)]
- [X] subject to UTS UHCs: Hydrofluoric acid

[redacted]

Solid Waste Determination

as required by 40 CFR 262.11 and 262.40(c)

Spent Hydrofluoric Acid

Subpart CC Determination/Compliance

☐ Not applicable ☒ Exempt: VO < 500ppm by wt. ☐ Exempt: managed in containers < 0.1 m^3

comments

Onsite Management

☐ Satellite accumulation ☒ < 90-day accumulation ☐ Non Haz accum. ☐ Universal accum.

☐ Trash/Dumpster ☐ Recycling Bin ☐ Piped to WW treatment

description of how waste is managed onsite from point of generation

Hazardous Waste Storage Tank

Final Disposition

☒ Offsite TSDF/recycle ☐ POTW ☐ Onsite WWTU / ENU ☐ Onsite recycling

description of ultimate disposition of waste, whether onsite or offsite

Deep well injection

Shipping Information

USDOT Shipping Name:	RQ, UN1790, Waste Hydrofluoric Acid
Hazard Class:	8, (6.1)
UN/NA Number:	UN1790
Packing Group:	II
RQ:	100 Pounds
Other - Technical Name:	N/A
Other - Marine Pollutant:	N/A
Emergency Response Guide (ERG) Number:	157
Container Designation:	Tanker Truck
Label(s) Required:	Corrosive, Poison
Mark(s) Required:	RQ, UN1790, Waste Hydrofluoric Acid

General Comments

*In the comments section indicate the most recent revision date and author

5007

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Phone: (248) 591-6660
MI Only: (888) 801-4MAS
Fax No: (248) 591-6668

Date: 01-Feb-07

Client: Molly Dwinnells
Dynecol, Inc.

Order ID: 0701164

MAS Sample #: 070126014 - 015

Project ID: [redacted]

Sample I.D.: 2437 SUR Bath; 2438 Acid Rinse

The above mentioned project has been completed in accordance with the Quality Assurance Project Plan written by Midwest Analytical Services, Inc., using SW-846, DEQ, EPA, Standard Methods and ASTM documents as reference guidelines. Specific sample information is available upon request. This test report applies only to the samples received as stated on the Chain of Custody (COC).

Test reports are not complete unless accompanied by the COC and this cover sheet. MAS is not responsible for interpretation of this test report. Please read the following numbered comments carefully.

For your convenience the following legend applies to all the following data sheets:

1. Reports shall not be reproduced, except in full, without written approval of MAS.
2. N/D=Not detected.
3. Results relate only to the items tested.
4. ppm=parts per million, mg/l, mg/kg or mg/kg(dry weight)
   ppb=parts per billion, ug/l, ug/kg or ug/kg (dry weight)
5. QC information on file.
6. EQL=Estimated Quantitation Limit.
7. N/A=Not Applicable, Not Available.
8. Materials listed on the COC were analyzed as requested. See COC for details.
9. Data along with qualifiers make this a useable data set.

Additional comments and explanations:

No additional comments

If you have any questions regarding this project feel free to contact me at (248) 591-6660 ext. 115 or (888) 801-4627 ext. 115. Thank you for choosing Midwest Analytical Services.

Charles Hindbaugh

Charles Hindbaugh
Quality Manager

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Phone: (248) 591-6660
MI Only: (888) 801-4MAS
Fax No: (248) 591-6666

Dynecool, Inc.
6520 Georgia St
Detroit, MI 48211-1594

Test Report
Order ID: 0701164
MAS Sample #: 070125014
Date Completed: 02/01/2007
PO Number: 20319

Project ID: [redacted]
Sample Identification: 2437 SUR Bath
Physical Description: Liquid
Sample Date/Time: 01/22/2007

Method Number	Parameter	Result	Units	SQL	Regulatory Limit	Analyst	Date Analyzed	Data Flag
SW 846 9040B	pH	2.18	units	2.0	12.5	DF	01/26/2007	
SW 846 1010	Ignitability	> 200	°F	75	140	DF	01/30/2007	
SW 846 7.3.3.2	Cyanide-Reactive	N/D	mg/Kg	20	250	DF	01/30/2007	
40 CFR 261.23.5	Sulfide-Reactive	Negative	N/A	500	500	DF	01/29/2007	
SW 846 9020B	Total Organic Halogens	N/D	mg/Kg	7.6	N/A	RD	01/30/2007	
	TCLP Metals:							
SW 846 6010B	Arsenic	N/D	mg/L	0.42	5	MV	02/01/2007	
SW 846 6010B	Barium	110	mg/L	1.2	100	MV	02/01/2007	
SW 846 6010B	Cadmium	N/D	mg/L	0.13	1	MV	02/01/2007	
SW 846 6010B	Chromium	9.3	mg/L	0.13	5	MV	02/01/2007	
SW 846 6010B	Lead	0.67	mg/L	0.16	5	MV	02/01/2007	
SW 846 7470A	Mercury	N/D	mg/L	0.002	0.2	MV	01/31/2007	
SW 846 6010B	Selenium	0.75	mg/L	0.25	1	MV	02/01/2007	
SW 846 6010B	Silver	0.25	mg/L	0.13	5	MV	02/01/2007	
	PCB:							
SW 846 8082	Aroclor - 1016	N/D	mg/Kg	0.50	N/A	DB	01/29/2007	
SW 846 8082	Aroclor - 1221	N/D	mg/Kg	0.50	N/A	DB	01/29/2007	
SW 846 8082	Aroclor - 1232	N/D	mg/Kg	0.50	N/A	DB	01/29/2007	
SW 846 8082	Aroclor - 1242	N/D	mg/Kg	0.50	N/A	DB	01/29/2007	
SW 846 8082	Aroclor - 1248	N/D	mg/Kg	0.50	N/A	DB	01/29/2007	
SW 846 8082	Aroclor - 1254	N/D	mg/Kg	0.50	N/A	DB	01/29/2007	
SW 846 8082	Aroclor - 1260	N/D	mg/Kg	0.50	N/A	DB	01/29/2007	

pH measured at 18° C.

Charles Hindbaugh
Charles Hindbaugh
Quality Manager

Solid Waste Profile Form

0 1367

Common Waste Name: Spent HNO3/HF Cleaning Acid

Howmet Plant and EPA ID: Plant 5, MID000722942

Regulatory Waste Type: EPA RCRA Hazardous

Section 1 - General Description of Waste

Common Waste Name: Spent HNO3/HF Cleaning Acid

Waste Generating Process: Chemical cleaning of titanium castings

RCRA Waste Codes: D002, D005, D007, D008

US DOT Proper Shipping Name: RQ, UN3264, Waste Corrosive Liquid, Inorganic, n.o.s. (D002, Nitric and Hydrofluoric Acids)

Hazard Class: 8 **UN/NA:** UN3264 **PG:** II ☒ Reportable Quantity (RQ)

ERG ID#: 154 **Source Code:** W103

Section 2 - Chemical Composition of Waste

The constituent information is based on: ☒ Generator Knowledge ☒ Analytical Testing ☐ SDS ☐ Other

List all constituents present in the waste. The concentration ranges should total 100%.

Constituents	Concentration Range
TCLP sludge analysis (12/19/2012) combined with knowledge of acid tank chem data history	

acceptable
D
073119

Section 3 - Characteristics of Waste

Physical Characteristics (at 70 Degrees Fahrenheit)

- ☐ Solid
- ☒ Liquid
- ☐ Gas
- ☐ Multiple Phases
  - ☐ Containing Solids % Solid Range:
  - ☐ Containing Liquids % Free Liquid Range:

Additional Characteristics

Color: Odor:

Flash Point: Boiling Point:

pH Range: % Halogens:

Density: BTUs/lb:

- ☐ Powder
- ☐ Thick Liquid or Suspension
- ☐ Material can be pumped
- ☐ Material can be poured
- ☐ Other Describe:

Hazards

- ☐ Carcinogen
- ☐ Compressed Gas
- ☒ Corrosive
- ☐ Explosive
- ☐ Flammable
- ☐ Infectious
- ☐ Irritant
- ☐ Non-Hazardous
- ☐ Oxidizer
- ☐ Poison - Inhalation Hazard
- ☐ Pyrophoric
- ☐ Radioactive
- ☐ Reactive
- ☐ Shock Sensitive
- ☒ Toxic
- ☐ Water Reactive
- ☐ Other Hazard:

Section 4 - Regulatory Requirements of Waste

Check all that apply to the waste:

- ☐ EPA RCRA Listed Hazardous Waste (F,K,P,U Codes)
- ☒ EPA RCRA Characteristic Waste (D001-D003)
- ☒ EPA RCRA Characteristic Toxicity Metals (D004-D011)
- ☐ EPA RCRA Characteristic Toxicity Pesticides and Herbicides (D012-D017, D020, and D031)
- ☐ EPA RCRA Characteristic Toxicity Waste (D018, D019, D021-D030, D032-D043)
- ☐ Michigan Hazardous Waste Codes Part 111 of Act 451
- ☐ Michigan Hazardous Waste Codes Part 121 of Act 451
- ☐ State Waste Codes

List applicable waste codes:

D002

D005, D007, D008

- ☐ Universal Waste
- ☐ Asbestos
- ☐ Debris Debris Size: _____
- ☐ Waste Subject to RCRA Subpart CC Controls
- ☐ Empty Waste Containers (R299.9207; 40 CFR 761.79)
- ☐ Dioxins
- ☐ Class I or Class II Ozone-Depleting Substances
- ☐ Waste from CERCLA (40 CFR 300, Appendix B) or MDNRE Mandated Cleanup
- ☐ Radioactive Elements Regulated by the NRC
- ☐ PCBs regulated under 40 CFR 147; 40 CFR 761; or PCB Compounds regulated under Part 121 of Act 451

PCB Concentration (ppm): _____

Section 5 - Land Disposal Restrictions

☒ Subject to Land Disposal Restrictions

☒ Restricted Waste ☐ Meets Treatment Standard

☐ Requires Treatment ☐ Not Applicable

Applicable Subcategory: Non-Wastewater D002 Corrosive, D005, 7 and 8

Applicable Treatment Standard: DEACT (pH>2.7<12.5; barium (21 mg/l TCLP; chromium (0.60 mg/l TCLP); lead (0.75 mg/l TCLP)

Treatment Technology Required: Deactivation (DEACT)

☒ Subject to one-time notice [40 CFR 268.7(a)(7)

Section 6 - Subpart CC Determination/Compliance

☒ Not Applicable ☐ Exempt: VOC <500ppm by weight

☐ Exempt: managed in containers <0.1 cubic meters ☐ Applicable, Waste required to be in Level 1 Container with organic suppression

Section 7 - Onsite and Shipping Container Information

Quantity of waste for disposal: (gallon, pounds, etc.) G - Gallons

Waste Generation Frequency: (month, quarter, year, etc.) Monthly

Onsite Container Management

Type of Onsite Container (metal drum, tanker truck, poly drum, etc.) DM - Metal Drums, Barrels, Kegs

Size of accumulation container(s): (1-gallon, 55-gallon, etc.) 6,600 gallons

Shipping Container Management

Type of Shipping Container (metal drum, tanker truck, poly drum, etc.) TT - Cargo Tanks (Tank Trucks)

Size of Shipping Container(s): (1-gallon, 55-gallon, etc.) ~2000 gallons

☒ Ongoing Shipment ☐ One Time Shipment

Container Contents: ☐ Solid ☒ Liquid ☐ Gas ☐ Lab Pack ☐ Loose Pack ☐ Bulk ☐ Vials

[If Lab Pack or Loose Pack, do not complete Section 6.]

Is the waste a commercial chemical product in its original labeled container? ☐ Yes ☒ No

Personal Protection Equipment Requirements (Describe):

Section 8 - Final Disposition

Waste Destination: Offsite TSDF/Recycle (Deep well Injection)

If the material is sent offsite, complete Transporter and TSDF below:

Transporter: US Ecology - Detroit (MID074259565)

Treatment, Storage, and Disposal Facility: US Ecology - Detroit (MID074259565)

Revised By:

Date Revised: Sep 21, 2015

[redacted]

FINGERPRINT FORM

ENVIRONMENTAL GEO-TECHNOLOGIES, LLC.

RECEIVING & APPROVAL FORM

RECEIVING INFORMATION	
Date	7.30.18
Receiving ID# HNO3-HF	SPENT CLEANING BATH
Manifest# Line:	
Land Ban Cert included	Yes No
EGT Approval #	
Generator	[redacted]
Client	
Transporter	
Time in	
Time out	
Received by	JKF
Sampled by	JKF

LABORATORY ANALYSIS		SOLUBLE	
Compatible? (RT#)	(Yes) No	Barium	
PCBs (ppm)(Oily Waste Only)?	NA	Calcium	
TOC (ppm)(CC Waste Only)?	NA	Total Iron	
Flash Point (°F)	>140°F	Magnesium	
pH (S.U.)	0.1	Sodium Chloride	
Cyanides? (mg/L)	<30	Bicarbonate	
Sulfides? (ppm)	<200	Carbonate	
Specific Gravity	1.18	TDS	
Physical Description	Liquid	Resistivity	
Stream Consistency	(Yes) No	Sulfate	
Oil in Sample	Yes (No)		
Temperature	77°F		
Conductivity	460 mS		
% Solids	2.7		
Turbidity	Yes (No)		
Color (visual)	Lt GREEN		
TSS (%)	<0.1		
Radiation Screen (as needed)	NEGATIVE		
Lab Signature			

[redacted]

Waste Characterization Form

Profile # [redacted] 01369 Date 11/17/2017

acceptable 012018

A. General Information

GENERATOR FACILITY

[redacted]

Generator
SBU
Site Contact
Address
City
State
Phone # Zip
E-Mail Fax #
USEPA ID#
State ID#
Charge Code

B. Waste Identification

Waste Name **Fluoromonomers Wastewater**

Process Knowledge [X] Yes [ ] No Analytical [ ] Yes [X] No Analytical Attached [ ] Yes [X] No

Description of Process Generating Waste **FPS/IXM Process Wastewater**

State Waste ID Number: **N/A**

C. Regulatory Information

Is this a USEPA hazardous waste? [X] Yes [ ] No

Is this an acutely hazardous waste (40 CFR 261.31 and 33) [ ] Yes [x] No

List the USEPA hazardous waste codes. Specify the nature of any D003 waste in section H(1): **D002** ✓

List any State Waste Codes or other state designations:

[N] CERCLA Regulated (Superfund) Waste	[N] Medical Waste	[N] Lab Pack (40 CFR 268)
[N] Subpart CC Regulated (40 CFR 264)	[N] TSCA Regulated	[N] Hazardous Debris (Subject to alternative LDR treatment standards)
[N] Ozone Depletion (40 CFR 82)	[N] FIFRA Regulated	[N] OLM (oil-like material 40 CFR 112)

Have all 40 CFR Part 261 Appendix VIII Compounds been listed/considered? [x] Yes [ ] No

Is this waste stream subject to a NESHAP/MACT Standard? Yes [ ] No [x]

If yes, please list which standard (i.e. Benzene NESHAP, HON Subpart G)

D. General Characteristics (at 70°F unless otherwise specified)

COLOR **clear to turbid**

ODOR [x] None [ ] Mild [ ] Strong

[x]	Liquid	100 %	PHASES	
[ ]	Solid	%	[x]	Single Layer
[ ]	Sludge	%	[ ]	Double Layer
			[ ]	Multi-Layer

Does the waste contain liquids per the paint filter test? Yes [x] No [ ]

Is waste a soil and/or a debris? No [X] Yes [ ]

[ ] Wastewater (<1% TOC & <1% TSS) [ ] Non-Wastewater as defined in 40 CFR 268.2

E. Handling Instructions

If special handling techniques are required, such as PPE, spills, fire response, etc.:
butyl gloves and goggles

Will waste clog a 1/16" nozzle? [ ] Yes [x] No [ ] N/A

F. Shipping Information

DOT PROPER SHIPPING DESCRIPTION **Waste Caustic alkali liquid, n.o.s.** ✓

Technical N.O.S. descriptions **Potassium Hydroxide, Sodium Hydroxide** ERG # **154**

HAZ. CLASS **Corrosive** UN or NA ID Number **UN1719** Packing Group **II** RQ **1000 lbs**

DOT Placard **8** DOT Labels **8** [No] Marine Pollutant

Shipping Containers

Volume of shipment		Frequency	Container Type	Material of Construction	Container Size	
44,000	LBS		Tanker		6,000	gallons

If a drum, is it open top or bung? **N/A** Type of absorbent, if any? **N/A**

[redacted]

Profile # [redacted]

G. Chemical Composition - Sum of the Typical should equal 100%.

All Constituents must be specifically identified and physical composition listed separately (e.g., toluene, benzene)
Include all constituents >1%, or >0.1% for carcinogens, or >100 ppm for Appendix VIII.

CAS Number	Chemical Name	Typical		Min		Max		Exp. Limit OSHA/ACGIH
7732-18-5	Water	76.2	%	70	%	100	%	
7789-23-3	Potassium Fluoride	2.0	%	0	%	3	%	
7681-49-4	Sodium Fluoride	0.3	%	0	%	1	%	
	Fluorocarbon Salts	1.5	%	0	%	2	%	
584-08-7	Potassium Carbonate	10.0	%	0	%	20	%	
497-19-8	Sodium Carbonate	0.6	%	0	%	1	%	
1310-58-3	Potassium Hydroxide	3.0	%	0	%	5	%	
1310-73-2	Sodium Hydroxide	1.0	%	0	%	3	%	
7646-93-7	Potassium Hydrogen Sulfate	2.1	%	0	%	2.5	%	
	Nalco 71300 Flocculant:	<1	%	0	%	1	%	
64742-47-8	Hydrotreated light distillate		%		%		%	
9005-67-8	Ethoxylated sorbitan monostearate		%		%		%	
68002-97-1	Ethoxylated C10-16 Alcohols		%		%		%	
67-56-1	Methanol	0.1	%	0	%	0.3	%	
7757-82-6	Sodium Sulfate	1	%	0	%	4	%	
7681-38-1	Sodium Bisulfate	1	%	0	%	2	%	
7722-84-1	Hydrogen Peroxide	0	%	0	%	0.2	%	
127-08-2	Potassium Acetate	0	%	0	%	0.2	%	
127-09-3	Sodium Acetate	0	%	0	%	0.2	%	
111-46-6	Diethylene glycol	0	%	0	%	0.1	%	
7757-79-1	Potassium Nitrate	0.05	%	0	%	1	%	
67-68-5	Dimethyl Sulfoxide	0.02	%	0	%	0.1	%	
7681-52-9	Sodium Hypochlorite	0.1	%	0	%	1	%	
7647-14-5	Sodium Chloride	1	%	0	%	2	%	
		100.0	% TOTAL					

Has a waste specific SDS been attached? [X] No [ ] Yes SDS # _____
Has a combination of component MSDS's been attached? [ ] Yes [X] No

H. (1) Hazardous Characteristics and Other Components - Section must be completed.

[N]	Acid Reactive	[N]	Water Reactive
[N]	Alkaline Reactive	[N]	Air Reactive
[N]	Carcinogen (or suspect)	[N]	Pyrophoric
[N]	Cyanosis Causing Chemicals	[N]	Biological/Infectious
[N]	Poison Inhalation Hazard (DOT)	[N]	Dust Hazard
[N]	Polymerizable	[N]	Asbestos
[N]	Peroxides/Oxidizers	[N]	Ignitable
[N]	Explosive/Shock Sensitive	[N]	Corrosive
[N]	Reactive Cyanides/Sulfides	[N]	Radioactive
[N]	Pesticides/Herbicides/Rodenticides		

(2) Physical Characteristics

	Minimum	Maximum	Actual
Vapor Pressure (psi)			
Specific Gravity			
Viscosity (cP 70° F)			
pH	12	14	
BTU/lb			
Flash Point (closed cup °F)			

(3) Trace Constituents

	Conc	Units
Antimony (Sb)		
Arsenic (As)		
Barium (Ba)		
Beryllium (Be)		
Cadmium (Cd)		
Chromium (Cr)		
Cobalt (Co)		
Copper (Cu)		
Lead (Pb)		
Manganese (Mn)		
Mercury (Hg)		
Nickel (Ni)		
Selenium (Se)		
Silver (Ag)		
Thallium (Tl)		
Vanadium (V)		
Benzene		
Dioxin/Furans		
Polycyclic Aromatics		
Polybrominated Biphenyls		
PCB's		

Generator Comments: 11/17/2017- Updated shipping description.

HMIS INFO: H-2 F-0 R-0

Generator Profile Certification:

I certify that the information provided in this document is true, accurate, and complete to the best of my knowledge.

[redacted]
Name & Title (typed or printed)

11/17/2017
Date

[redacted]
Generator's Authorized Signature