

<u>SUBJECT</u>		<u>DATE</u>
1253. Used Oil Filter Regulation – The Feds vs. Washington State	ENCORE	NOV 16, 2017
1254. PCB Radioactive Wastes and Exception Reporting	ENCORE	NOV 21, 2017
1255. Satellite Accumulation Requirements and Container Inspections	ENCORE	NOV 30, 2017
1256. Disposing of PCB Ballasts with PCB Potting Material	ENCORE	DEC 7, 2017
1257. Fluorescent Light Ballasts and PCB Annual Reporting		DEC 14, 2017
1258. 'Twas the Night Before Christmas – The Twenty-Fifth Annual Edition		DEC 21, 2017
1259. The Purpose of Keeping Containers Closed Except When Adding or Removing Wastes	ENCORE	DEC 28, 2017
1260. Satellite Accumulation and Product Vessel Cleanouts	ENCORE	JAN 4, 2018
1261. Conservative Declaration that Material is a Hazardous Waste	ENCORE	JAN 11, 2018
1262. Defining Criteria for Household Waste Exclusion	ENCORE	JAN 18, 2018
1263. The Household Waste Exclusion and Renovation Debris	ENCORE	JAN 25, 2018
1264. The Household Waste Exclusion and Renovation Debris – Part II	ENCORE	FEB 1, 2018
1265. The Mixtures Rule – Washington State vs. The Feds	ENCORE	FEB 8, 2018
1266. Spent Lead-Acid Batteries and Secondary Containment	ENCORE	FEB 15, 2018
1267. Spent Lead-Acid Batteries and Accumulation Time Limits	ENCORE	FEB 23, 2018
1268. CERCLA Hazardous Substances – A Brief Definition	ENCORE	MAR 1, 2018
1269. Radioactively Contaminated Lead-Acid Batteries and Hazardous Debris	ENCORE	MAR 8, 2018
1270. RCRA Treatment and the Two-Part Definition	ENCORE	MAR 15, 2018
1271. Who Wants to be a Generator!!!	ENCORE	MAR 22, 2018
1272. Who Wants to be a Generator Part 2!!!	ENCORE	MAR 29, 2018
1273. “No Smoking” Signs and Tobacco-Free Facilities		APR 5, 2018
1274. Aqueous Solutions and the Characteristic of Corrosivity	ENCORE	APR 12, 2018

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## TWO MINUTE TRAINING

**TO:** CH2M HILL PLATEAU REMEDIATION COMPANY

**FROM:** PAUL W. MARTIN, RCRA Subject Matter Expert  
CHPRC Environmental Protection, Hanford, WA

**SUBJECT:** AQUEOUS SOLUTIONS AND THE CHARACTERISTIC OF CORROSIVITY

**DATE:** APRIL 12, 2018

<u>CHPRC Projects</u>	<u>CH PRC - Env. Protection</u>	<u>MSA</u>	<u>Hanford Laboratories</u>	<u>Other Hanford Contractors</u>	<u>Other Hanford Contractors</u>
Richard Austin Tania Bates Rene Catlow Richard Clinton Larry Cole John Dent Lorna Dittmer Brian Dixon Eric Erpenbeck Stuart Hildreth Mike Jennings Stephanie Johansen Melvin Lakes Richard Lipinski Jim McGrogan Stuart Mortensen Dave Richards Phil Sheely Connie Simiele Jennie Stults Jeff Westcott Jeff Widney	Bob Bullock Bill Cox Laura Cusack Sasa Kosjerina Jim Leary Anthony Nagel Robert Nielson Linda Petersen Fred Ruck Ray Swenson Wayne Toebe Daniel Turlington Dave Watson	Brett Barnes Jerry Cammann Jeff Ehlis Garin Erickson Panfilo Gonzalez Jr. Dashia Huff Mark Kamberg Jon McKibben Saul Martinez Jon Perry Christina Robison Lana Strickling Lou Upton	(TBD)  <u>DOE RL, ORP, WIPP</u>  Mary Beth Burandt Duane Carter Cliff Clark Tony McKarns Ellen Mattlin Scott Stubblebine	Bill Bachmann Dean Baker Scott Baker Lucinda Borneman Paul Crane Tina Crane Ron Del Mar John Dorian Mark Ellefson Tom Gilmore Rob Gregory Gene Grohs James Hamilton Andy Hobbs Ryan Johnson Megan Lerchen Charles (Mike) Lowery Michael Madison Terri Mars Cary Martin Grant McCalmant Steve Metzger Tony Miskho Matt Mills Tom Moon Chuck Mulkey Kirk Peterson	Jean Quigley Dan Saueressig Merrie Schilperoort Joelle Moss Glen Triner Greg Varljen Julie Waddoups Jay Warwick Ted Wooley

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## TWO MINUTE TRAINING

**SUBJECT:** Aqueous Solutions and the Characteristic of Corrosivity

**Q:** A customer has an acidic wastestream that contains 15% water by volume. The customer believes that the wastestream is aqueous and uses an electronic device to measure pH. The device indicates that the wastestream has a pH of 3.0 and the customer designates the wastestream as nonregulated, i.e., not a D002 corrosive characteristic waste. Has this wastestream been properly designated?

**A:** [WAC 173-303-090\(6\)\(a\)\(i\)](#) [[40 CFR 261.22](#)] basically states that the characteristic of corrosivity for aqueous waste is determined via [SW-846 Test Method 9040](#), "pH Electrometric Measurement". SW-846 states that Method 9040 "is used to measure the pH of aqueous wastes and those multiphase wastes where the aqueous phase constitutes at least 20% of the total volume of wastes."

The customer's waste is 15% water and does not meet the definition of "aqueous" in terms of the characteristic of corrosivity for aqueous wastes per Method 9040. Since the customer's waste is nonaqueous it is not amendable to pH measurement via Method 9040. Therefore, the customer's waste may not have been properly designated. The more appropriate corrosivity test would be to determine if this "liquid" - as opposed to aqueous - wastestream corrodes steel at greater than ¼ inch per year. See [WAC 173-303-090\(6\)\(a\)\(ii\)](#).

Note that the use of an improper test method does not necessarily mean that the material will designate as a D002 corrosive waste. The use of Method 9040 on a nonaqueous waste just means that the actual pH of the acid wastestream has not been properly determined. Also note that the customer could still apply process knowledge to determine the regulatory status of this wastestream.

### SUMMARY:

- The characteristic of corrosivity for aqueous wastes is determined via Method 9040.
- An aqueous waste is a form amenable to pH measurement.
- A waste amendable to pH measurement must contain at least 20% water by volume.

Excerpts from [WAC 173-303-090\(6\)](#), [40 CFR 261.22](#) and [SW-846, Method 9040](#) and an EPA memo dated 4/23/93 are attached. If you have any questions, contact me at [Paul\\_W\\_Martin@rl.gov](mailto:Paul_W_Martin@rl.gov) or at (509) 376-6620.

**FROM:** Paul W. Martin

**DATE:** 4/12/18

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## TWO MINUTE TRAINING – ATTACHMENT

**SUBJECT:** Aqueous Solutions and the Characteristic of Corrosivity

**WAC 173-303-090(6) Characteristic of corrosivity.**

(a) A solid waste exhibits the characteristic of corrosivity if a representative sample of the waste has any one or more of the following properties:

(i) It is aqueous and has a pH less than or equal to 2, or greater than or equal to 12.5, as determined by a pH meter using Method 9040C in "*Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*," EPA Publication SW-846, as incorporated by reference in WAC 173-303-110 (3)(a);

(ii) It is liquid and corrodes steel (SAE 1020) at a rate greater than 0.250 inch (6.35 mm) per year at a test temperature of 55 degrees C (130 degrees F) as determined by the test method specified in NACE (National Association of Corrosion Engineers) Standard TM0169-2000 as standardized in "*Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*," (Method 1110A) EPA Publication SW-846, as incorporated by reference in WAC 173-303-110 (3)(a); or

(iii) It is solid or semisolid which, upon testing using Method 9045D in "*Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*" (SW 846), results in a pH less than or equal to 2, or greater than or equal to 12.5.

(b) A solid waste that exhibits the characteristic of corrosivity because:

(i) It has either of the properties described in (a)(i) or (ii) of this subsection will be designated DW, and assigned the dangerous waste number of D002;

(ii) It only has the property described in (a)(iii) of this subsection will be designated DW, and assigned the dangerous waste number of WSC2.

**40 CFR 261.22 Characteristic of corrosivity.**

(a) A solid waste exhibits the characteristic of corrosivity if a representative sample of the waste has either of the following properties:

(1) It is aqueous and has a pH less than or equal to 2 or greater than or equal to 12.5, as determined by a pH meter using Method 9040C in "*Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*," EPA Publication SW-846, as incorporated by reference in §260.11 of this chapter.

(2) It is a liquid and corrodes steel (SAE 1020) at a rate greater than 6.35 mm (0.250 inch) per year at a test temperature of 55 °C (130 °F) as determined by Method 1110A in "*Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*," EPA Publication SW-846, and as incorporated by reference in §260.11 of this chapter.

(b) A solid waste that exhibits the characteristic of corrosivity has the EPA Hazardous Waste Number of D002.

### METHOD 9040C - pH ELECTROMETRIC MEASUREMENT

1.1 This method is used to measure the pH of aqueous wastes and those multiphase wastes where the aqueous phase constitutes at least 20% of the total volume of the waste.

1.2 The corrosivity of concentrated acids and bases, or of concentrated acids and bases mixed with inert substances, cannot be measured. The pH measurement requires some water content.

**FROM:** Paul W. Martin

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## TWO MINUTE TRAINING – ATTACHMENT

**SUBJECT:** Aqueous Solutions and the Characteristic of Corrosivity

Faxback 11738

9443.1993(05)

United States Environmental Protection Agency  
Washington, D.C. 20460  
Office of Solid Waste and Emergency Response

MEMORANDUM

April 23, 1993

**SUBJECT:** Interpretation of "Aqueous" as Applied to the  
Corrosivity Characteristic (40 CFR 261.22)

**TO:** Joseph R. Franzmathes, Director Waste Management Division

**FROM:** David Bussard, Director Characterization and Assessment Division

This memorandum responds to your memorandum to Bruce Diamond dated March 11, 1993 requesting clarification of the term "aqueous" as it applies to the corrosivity characteristic. Your memorandum references a September 1992 "Hotline Questions and Answers" publication produced by the RCRA/Superfund Hotline contractors and concurred upon by my Division and by OSW.

The Hotline publication correctly defines "aqueous," for the purposes of the corrosivity characteristic, to mean in a form amenable to pH measurement. This interpretation is consistent with the supporting documentation found in the background document for the corrosivity characteristic final rulemaking (Background Document: Section 261.22 - Characteristic of Corrosivity, May 2, 1980). I have attached the applicable section for your information.

A more specific interpretation of "aqueous" for the purpose of the corrosivity characteristic may be found in the method referenced in the actual regulatory text for the corrosivity characteristic at 40 CFR 261.22(a)(1). The regulation states that "[the EPA test method for pH is specified as Method 5.2, in "Test Methods for the Evaluation "of Solid Waste, Physical/Chemical Methods" (see attachment). Method 5.2, pH Electrometric Measurement, which was renumbered to Method 9040 specifies under scope and application that the method "is used to measure the pH of aqueous wastes and those wastes where the aqueous phase constitutes at least 20% of the total volume of "waste." Therefore, any waste for which this method is applicable must contain at least 20% free water by volume. This method is also attached for your information.

If you or your staff should have any questions regarding this memorandum, please call me or have your staff call Al Collins, of my staff, at 202-260-4791.

Attachments

**FROM:** Paul W. Martin

**DATE:** 4/12/18

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