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1341.	RCRA EPA Identification Numbers – Site Specifics	ENCORE JUL 25, 2019
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1343.	Paint Wastes and the Applicability of the F001-F005 Listings to Ingredients	ENCORE AUG 8, 2019
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1345.	PCB Containers and ≥ 50 ppm	ENCORE AUG 22, 2019
1346.	CERCLA Hazardous Substances – The Petroleum Exclusion	ENCORE AUG 29, 2019
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1348.	RCRA LR One-Year Storage Prohibition vs., PCB One-Year Disposal Time Limit	SEP 12, 2019
1349.	Regulatory Status of PCB Remediation Wastes Disposed Prior to April 18, 1978	ENCORE SEP 19, 2019
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1367.	TSDF Requirements When Shipping Dangerous Waste to another TSDF	JAN 23, 2020
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1371.	Used Oil, Secondary Containment and Response to Spills	ENCORE FEB 20, 2020
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1386.	PCB Certificates of Disposal and Manifesting Between Related Facilities	ENCORE JUN 4, 2020
1387.	RCRA Empty Containers vs. TSCA PCB Decontaminated Containers - Scenario I	ENCORE JUN 11, 2020
1388.	RCRA Empty Containers vs. TSCA PCB Decontaminated Containers - Scenario II	ENCORE JUN 18, 2020
1389.	RCRA Empty Containers vs. TSCA PCB Decontaminated Containers - Scenario III	ENCORE JUN 25, 2020
1390.	Aqueous Solutions and the Characteristic of Corrosivity	ENCORE JUL 2, 2020

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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: JULY 2, 2020

<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 Laura Cusack John Dent Lorna Dittmer Stuart Hildreth Mike Jennings Stephanie Johansen Sasa Kosjerina Melvin Lakes Richard Lipinski Stuart Mortensen Dave Richards Phil Sheely Connie Simiele Jeff Westcott	Jeff Bramson Bob Bullock Frank Carleo Danielle Collins Bill Cox Jeanne Elkins Ryan Fisher Jonathan Fullmer Barry Lawrence Diane Leist Mitch Marrott Stewart McMahand Brian Mitcheltree Anthony Nagel Linda Petersen Sean Sexton Dave Shea Kat Thompson Wayne Toebe Eric Trotta Daniel Turlington Dave Watson	Brett Barnes Michael Carlson Mike Demiter Kip George Jerry Cammann Jeff Ehlis Garin Erickson Panfilo Gonzalez Jr. Dashia Huff Mark Kamberg Jon McKibben Saul Martinez Matt Mills Carly Nelson Michelle Oates Eric Pennala Jon Perry Christina Robison Christian Seavoy David Shaw John Skogleie Lana Strickling Greg Sullivan	(TBD) <u>DOE RL, ORP, WIPP</u> Mary Beth Burandt Duane Carter Al Farabee Tony McKarns	Bill Bachmann Dean Baker Scott Baker Lucinda Borneman Paul Crane Tina Crane Ron Del Mar John Dorian Mark Ellefson Darrin Faulk Rob Gregory James Hamilton Andy Hobbs Ryan Johnson Megan Lerchen Mike Lowery Michael Madison Terri Mars Cary Martin Grant McCalmant Steve Metzger Tony Miskho Tom Moon Chuck Mulkey Kirk Peterson	Dan Saueressig 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 the customer properly designated this wastestream?

A: [WAC 173-303-090\(6\)\(a\)\(i\)](#) [[40 CFR 261.22](#)] states that the characteristic of corrosivity for aqueous waste is determined via [SW-846 Test Method 9040C](#), "pH Electrometric Measurement". SW-846 states that Method 9040C "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 9040C. Since the customer's waste is nonaqueous, it is not amendable to electrometric pH measurement via Method 9040C. Therefore, the customer may not have properly designated the waste. 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 9040C 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 9040C.
- 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](#), [SW-846](#), [Method 9040C](#), and an EPA memo dated April 23, 1993 ([RO 11738](#)), are attached. If you have any questions, please contact me at [Paul W Martin@rl.gov](mailto:Paul.W.Martin@rl.gov) or at (509) 376-6620.

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.

SW-846 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

DATE: 7/2/2020

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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.

FROM: Paul W. Martin

DATE: 7/2/2020

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