

<u>SUBJECT</u>		<u>DATE</u>
1394. RCRA Empty vs. DOT Empty	ENCORE	JUL 30, 2020
1395. RCRA Empty vs. DOT Empty II	ENCORE	AUG 6, 2020
1396. Empty Containers and the "Empty" Label	ENCORE	AUG 13, 2020
1397. Exceptions to Free Liquids in Landfills Prohibition	ENCORE	AUG 20, 2020
1398. Dust Suppression in Landfills with Nonhazardous Liquids	ENCORE	AUG 27, 2020
1399. Treated Hazardous Wastes Used as Dust Suppressant	ENCORE	SEP 3, 2020
1400. Regulatory Status of Used Oil Mixed with Diesel Fuel	ENCORE	SEP 10, 2020
1401. RCRA Liquids, Free Liquids, and Releasable Liquids	ENCORE	SEP 17, 2020
1402. Available Regulatory Relief from Underlying Hazardous Constituent (UHC) Requirements	ENCORE	SEP 24, 2020
1403. Smoke Detector Disposal and the NRC	ENCORE	OCT 1, 2020
1404. DOT Shipping of Damaged, Defective, or Recalled Lithium Batteries	ENCORE	OCT 8, 2020
1405. Conservative Declaration that Material is a Hazardous Waste	ENCORE	OCT 15, 2020
1406. Manifest Exception Report Submittal Timeframes – RCRA vs. TSCA	ENCORE	OCT 22, 2020
1407. Characteristic Ignitable, Corrosive or Reactive Debris and Macroencapsulation	ENCORE	OCT 29, 2020
1408. RCRA Satellite Accumulation Areas and Applicability of Personnel Training		NOV 5, 2020
1409. The Hazardous Waste Generator Improvements Rule and Designation of Nonhazardous Waste		NOV 12, 2020
1410. RCRA Aisle Space Requirements and Washington State vs., EPA		NOV 19, 2020
1411. The Definition of Good Housekeeping	ENCORE	NOV 24, 2020
1412. Absorbent Additions and Treatment	ENCORE	DEC 3, 2020
1413. LDR Notifications and F001-F005 Constituents of Concern	ENCORE	DEC 10, 2020
1414. LDR Notifications and F001-F005 Constituents of Concern – Again!	ENCORE	DEC 17, 2020
1415. 'Twas the Night before Christmas – The Twenty-Seventh Edition		DEC 24, 2020
1416. LDR Notifications and F001-F005 Constituents of Concern - One Last Time!	ENCORE	DEC 31, 2020
1417. RCRA Empty Containers and Removing as Much Waste as Possible	ENCORE	JAN 7, 2021
1418. Universal Waste, Incandescent Bulbs and Nonhazardous Bulbs	ENCORE	JAN 14, 2021
1419. Listed Waste Codes and Pre-RCRA Wastes	ENCORE	JAN 21, 2021
1420. Commercial Chemical Products and Unused Batteries	ENCORE	JAN 28, 2021
1421. Recycling of Non-Listed Commercial Chemical Products	ENCORE	FEB 4, 2021
1422. RCRA Personnel Training and Classroom Training vs. Online Training	ENCORE	FEB 11, 2021
1423. EPA Definition of "Annual" Refresher Training	ENCORE	FEB 18, 2021
1424. Satellite Accumulation of Aerosol Cans and Determining the 55-Gallon Limit	ENCORE	FEB 25, 2021
1425. PCB Wastes and RCRA Hazardous Waste Characteristics D018 through D043	ENCORE	MAR 4, 2021
1426. PCB Containers and Empty Requirements	ENCORE	MAR 11, 2021
1427. PCB Containers and Empty Requirements II	ENCORE	MAR 18, 2021
1428. PCB Containers and Decontamination Requirements	ENCORE	MAR 25, 2021
1429. F002, Methylene Chloride and Coffee Decaffeination	A.FOOLS'	APR 1, 2021

Approved for Public Release;
Further Dissemination Unlimited

DISCLAIMER - "Two Minute Training" ("2MT") is a peer-to-peer communication, presented to share the benefit of the author's work experience with other professionals, who can independently evaluate his analysis. 2MT does not necessarily reflect the opinions, conclusions or policies of the author's past or current employers or the US Department of Energy. The author's employers do not take any responsibility for the accuracy of its conclusions. 2MT is not intended to be used as authoritative guidance or direction by any person or entity. Anyone transmitting or reproducing it is prohibited from modifying its content, this disclaimer, or other text, or republishing it independent of its original source.

TWO MINUTE TRAINING

TO: CENTRAL PLATEAU CLEANUP COMPANY

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

SUBJECT: F002, METHYLENE CHLORIDE AND COFFEE DECAFFEINATION

DATE: APRIL 1, 2021

<u>CPCCo Projects</u>	<u>CPCCo - Env. Protection</u>	<u>HMIS</u>	<u>Hanford Laboratories</u>	<u>Other Hanford Contractors</u>	<u>Other Hanford Contractors</u>
Richard Austin Tania Bates Rene Catlow Richard Clinton Stuart Hildreth Stephanie Johansen Sasa Kosjerina Richard Lipinski Stuart Mortensen Dave Richards Sean Sexton Dave Shea Phil Sheely Jeff Westcott	Jeff Bramson Bob Bullock Frank Carleo Danielle Collins Jennifer Copeland Jeanne Elkins Ryan Fisher Jonathan Fullmer Steve Heninger Julie Johanson Barry Lawrence Diane Leist Mitch Marrott Stewart McMahand Brian Mitcheltree Anthony Nagel Chris Plager Linda Petersen Brent Porter Dale Snyder Kat Thompson Wayne Toebe Daniel Turlington Britt Wilkins	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 Skoglie 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

Approved for Public Release;
Further Dissemination Unlimited

DISCLAIMER - "Two Minute Training" ("2MT") is a peer-to-peer communication, presented to share the benefit of the author's work experience with other professionals, who can independently evaluate his analysis. 2MT does not necessarily reflect the opinions, conclusions or policies of the author's past or current employers or the US Department of Energy. The author's employers do not take any responsibility for the accuracy of its conclusions. 2MT is not intended to be used as authoritative guidance or direction by any person or entity. Anyone transmitting or reproducing it is prohibited from modifying its content, this disclaimer, or other text, or republishing it independent of its original source.

TWO MINUTE TRAINING

SUBJECT: F002, Methylene Chloride and Coffee Decaffeination

Q: Clovis Walbash, if that is their real name, asked, "Is it true that methylene chloride can be used to decaffeinate coffee and if so, how is the methylene chloride waste (the solvent waste and the trace residuals) managed?"

A: Concerning how coffee decaffeinator use methylene chloride to decaffeinate coffee, an article from [Coffee Confidential](#) contained the following excerpts:

"Solvent based processes are those in which the caffeine is removed from the beans with the help of a chemical solvent, such as methylene chloride or ethyl acetate. Those solvent-based processes in turn can be divided into methods using the "direct" method versus the "indirect" method.

In the direct method, caffeine is removed by soaking the materials directly in a solvent; the solvent is directly applied to the beans. On the other hand, in the indirect method the caffeine-laden water is transferred to a separate tank and treated with a solvent; in this case the solvent never touches the beans."

"Although methylene chloride (CH₂Cl₂), aka dichloromethane (in Europe) or MC, is a solvent, its use as a decaffeination agent is not considered a health risk. In fact, the Food and Drug Administration has determined any potential health risk is so low "as to be essentially non-existent" (FDA, 1985). While the FDA regulation allows up to ten parts per million (ppm) residual methylene chloride, actual coffee industry practice result in levels closer to one part per million."

Concerning management of the waste methylene chloride, the listing for F002 states:

*"The following spent halogenated solvents: Tetrachloroethylene, **methylene chloride**, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, ortho-dichlorobenzene, trichlorofluoromethane and 1,1,2 trichloroethane; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those listed in F001, F004, or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures."*

Since the methylene chloride is used (spent) for its solvent properties to extract the caffeine, and would exceed the 10 percent threshold prior to use, the waste meets the listing description for F002 hazardous wastes upon discard. The trace residuals remaining in the coffee would not be considered spent - no kidding - and thus the coffee beans themselves containing trace amounts of methylene chloride are not "F" listed.

Therefore, there is no need for *YOU* to think about *METHYLENE CHLORIDE* the next time you are drinking your decaffeinated coffee.

SUMMARY:

- It is not an April Fools' joke that methylene chloride is used to decaffeinate coffee.
- However, no more than 1 ppm of methylene chloride remains in the coffee after decaffeination.
- Waste methylene chloride from decaffeinating coffee is F002; the trace residuals in the coffee beans are not.

Nothing is attached to the e-mail. 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: 4/1/2021

FILE: 2MT\2021\040121.rtf

PG: 1

DISCLAIMER - "Two Minute Training" ("2MT") is a peer-to-peer communication, presented to share the benefit of the author's work experience with other professionals, who can independently evaluate his analysis. 2MT does not necessarily reflect the opinions, conclusions or policies of the author's past or current employers or the US Department of Energy. The author's employers do not take any responsibility for the accuracy of its conclusions. 2MT is not intended to be used as authoritative guidance or direction by any person or entity. Anyone transmitting or reproducing it is prohibited from modifying its content, this disclaimer, or other text, or republishing it independent of its original source.