

JEH QUIZ

FEATURED ARTICLE QUIZ #4

Quantifying the Rate Copper Leaches From a Copper Drinking Vessel Into Simulated Beverages Under Conditions of Consumer Use

Available to those with an active National Environmental Health Association (NEHA) membership, the *JEH* Quiz is offered six times per calendar year and is an easily accessible way to earn continuing education (CE) contact hours toward maintaining a NEHA credential. Each quiz is worth 1.0 CE.

Completing quizzes is now based on the honor system and should be self-reported by the credential holder. Quizzes published only during your current credential cycle are eligible for CE credit. Please keep a copy of each completed quiz for your records. CE credit will post to your account within three business days.

Paper or electronic quiz submissions will no longer be collected by NEHA staff.

INSTRUCTIONS TO SELF-REPORT A *JEH* QUIZ FOR CE CREDIT

1. Read the featured article and select the correct answer to each *JEH* Quiz question.
2. Log in to your MyNEHA account at <https://neha.users.membersuite.com/home>.
3. Click on Credentials located at the top of the page.
4. Select Report CEs from the drop-down menu.
5. Enter the date you finished the quiz in the Date Attended field.
6. Enter 1.0 in the Length of Course in Hours field.
7. In the Description field, enter the activity as "*JEH* Quiz #, Month Year" (e.g., *JEH* Quiz 4, January/February 2022).
8. Click the Create button.

JEH Quiz #2 Answers

October 2021

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|------|------|------|-------|
| 1. a | 4. b | 7. a | 10. c |
| 2. b | 5. a | 8. d | 11. c |
| 3. c | 6. d | 9. c | 12. a |

→ Quiz effective date: January 1, 2022 | Quiz deadline: April 1, 2022

1. Copper leaching is problematic for foodstuffs with ___ pH.
 - a. low
 - b. neutral
 - c. high
2. According to the Institute of Medicine, the recommended dietary allowance of copper for adults is
 - a. 600 µg/day.
 - b. 700 µg/day.
 - c. 800 µg/day.
 - d. 900 µg/day.
3. In this article, the authors used a popular cocktail traditionally served in a copper vessel as a model system to study copper leaching under conditions of simulated consumer use.
 - a. True.
 - b. False.
4. The authors observed copper leaching into the Moscow Mule solution at a rate of ___ copper/min at room temperature.
 - a. $0.048 \pm 7 \times 10^{-2}$ ppm
 - b. $0.048 \pm 7 \times 10^{-3}$ ppm
 - c. $0.048 \pm 7 \times 10^{-4}$ ppm
 - d. $0.048 \pm 7 \times 10^{-5}$ ppm
5. The U.S. Environmental Protection Agency mandates that copper levels in drinking water that exceed ___ must be reported.
 - a. 1.0 ppm
 - b. 1.1 ppm
 - c. 1.2 ppm
 - d. 1.3 ppm
6. At the rate measured, the concentration of leached copper in a copper mug reaches 1.3 ppm in slightly over
 - a. 23 min.
 - b. 27 min.
 - c. 33 min.
 - d. 37 min.
7. The Food and Drug Administration model *Food Code* prohibits foodstuffs with a pH ___ from coming in contact with copper due to concerns of copper leaching.
 - a. <3.0
 - b. <4.0
 - c. <5.0
 - d. <6.0
8. The Moscow Mule solutions used in the article experiments had a measured pH of
 - a. 2.5.
 - b. 2.6.
 - c. 2.7.
 - d. 3.0.
9. Acute copper toxicity from consumption of Moscow Mule cocktails in one sitting is unlikely based on the findings of this article.
 - a. True.
 - b. False.
10. In studying the effect of each ingredient in the Moscow Mule cocktail on the copper leaching rate, the highest leaching rates were observed for
 - a. lime juice.
 - b. ginger beer.
 - c. ethanol.
 - d. deionized water.
11. The data in Figures 4 and 5 are consistent with pH being the sole contributor to the copper leaching rate.
 - a. True.
 - b. False.
12. The authors investigated the mechanism by which metallic copper is transformed to copper(II) and a ___ fold increase in copper leaching occurred when oxygen was reintroduced into the Moscow Mule solution.
 - a. 2.2
 - b. 2.4
 - c. 2.6
 - d. 2.8